The Builder.

VOL. LIX. No. 2433. SATURDAY, OCT. 11, 1890.

ILLUSTRATIONS.

"The Danaides": Design for Mural Decoration.—By Miss May Bowley ..... *Double-Page Ink-Photo.*
St. Philip's Church, Stepney: Four Views.—Mr. Arthur Cawston, Architect ..... *Two Single-Page Ink-Photo's.*
Sections, Details, &c., of St. Philip's Church, Stepney ..... *Double-Page Photo-Litho.*
Sketches from the Arts and Crafts Exhibition ..... *Double-Page Photo-Litho.*

Blocks in Text.

Frieze Panel in Plaster: By T. R. Spence ..... Page 283
Lion Medallion in Mosaic: By T. R. Spence 285
Modern House, Prairie Avenue, Chicago 287
Plan of St. Philip's Church, Stepney 288
Shrine of St. Patrick's Bell ..... Page 289
The "Sir Paul Pindar" Tavern, Bishopsgate-street 290
Hot-water Supply: Diagrams illustrating Paper in the "Student's Column" 293
Slatter & Watkins's Gas Regulator 295

CONTENTS.

The Architectural Exhibition, Turin 279
Notes 281
The Arts and Crafts Exhibition 283
On the Technical Education of Architects 285
City Architecture in Western America 286
"The Danaides": Design for Mural Decoration 288
St. Philip's Church, Stepney 288
Sketches at the Arts and Crafts Exhibition 288
The Case, or Shrine, of St. Patrick's Bell 289
Competition for the Whitefield Memorial Chapel and Topladv Hall, Tottenham Court-road 289
The "Sir Paul Pindar" Tavern, Bishopsgate-street 290
The London County Council 290
Books: Planat's "Encyclopédie de l'Architecture" (Dujardin, Paris); Ede's "Guns and Gun Material" (Spon); "Hamburg und Seine Bauten" (Meissner, Hamburg) 291
The Fire at Salonika 291
An "Employers' Union" 291
"A Sanitary Note from Greenock" 292
"Fonts" 292
Illustrations of the "Vicar of Wakefield" 292
The Student's Column: Hot Water Supply.—XV. 292
General Building News 293
Sanitary and Engineering News 294
Stained Glass and Decoration 294
Foreign and Colonial 295
Miscellaneous 295
Competition, Contracts, and Public Appointments 296
Legal 296
Meetings 296
Recent Patents 296
Some Recent Sales of Property 297
Prices Current of Materials 297

The Architectural Exhibition, Turin.

THE first general exhibition of architecture held in Italy was opened at Turin on September 28 last, as incidentally mentioned in our columns. Among the Italian architects a great deal of interest and enthusiasm seems to have been aroused in regard to this exhibition, which has been planned on a very extensive scale, and is regarded in Italy as a demonstration of the achievements and powers of modern Italian architecture; and we might before this have had in our hands more than one account of the exhibition, "written in very choice Italian" and inspired with the glow of patriotic fervour. English readers, however, will be more interested to know how the exhibition appears from an English than from an Italian point of view; and we preferred, therefore, to postpone any detailed comment on the collection till it could be specially visited from England.

Considerable pains have been taken to make the exhibition thoroughly representative of the artistic side, at least, of Italian architecture, both mediæval and modern. The more ancient work of classic times is but slightly shown, with the exception of that of Pompeii. The building in which the exhibition is located is that erected some few years since for the exhibition of Italian painting and sculpture, but the façade has been decorated to make the building especially expressive of its immediate purpose. In the centre of the façade is an Ionic tetrastyle portico, with pediment over, the detail and colouring being Roman, or, more strictly, Pompeian, rather than Greek. The columns, which are without flutes, are painted dusky red for the lower third of their height and yellow above, the capitals being principally white, picked out with red, yellow, and blue; the bases are painted dark green, and the entablature is white with two lines of red on the frieze, and one cyma below it, painted blue. The egg and tongue enrichment and fret on the soffite of the corona are painted only, not carved, the whole of the façade being executed in stucco. Above the pediment rises, slightly in the rear, an attic inscribed in painted letters with the word "Architettura." The walls flanking the portico are painted dark red, and are quite plain, except the cornice, which continues that of the portico and is similarly treated. At the angles are the words "Ars" and "Labor," one on each side, and a certain amount of decoration is given by two ornamental sockets to support the flag poles; these have as part of their design female winged figures of heroic size, with laurel wreaths and palms of victory. The sockets and figures are boldly and somewhat roughly modelled in stucco, and coloured to imitate bronze.

The plan of the building is simple, and well adapted for the purposes of an art exhibition. Passing through the tetrastyle portico we enter the first of a series of eleven top-lighted galleries; on the right of these, and occasionally communicating, are ten more top-lighted rooms, while on the left are two side-lighted galleries, separated by a central pavilion, which forms the entrance to the grounds, and affords space for a café and restaurant. The exhibition building is in the public gardens on the banks of the Po, in a picturesque situation, and is easily reached by tramcar.

The general arrangement of the exhibition to a considerable extent lacks system and order, the original scheme of the grouping having apparently been interfered with by irregularity in the reception of the various objects exhibited; in fact, some important additions were made during the stay of our special correspondent at Turin. The catalogue, too, is not yet ready; and though advertised to be held for the months of September, October, and November, the opening of the exhibition was only at the end of September, as already mentioned, and it therefore suffers somewhat from the general tardiness.

The original idea of arrangement seems to have been to locate modern Italian architecture in the central range of galleries, excepting the middle one (No. 6), which is devoted to the exhibition of old work, grouped according to the various districts of Italy, and the two end galleries, which were evidently intended to receive examples of internal decoration. The right-hand galleries are mainly devoted to sketches, photographs, and publications; the left-hand galleries to municipal exhibitions, both native and foreign. The original idea has, however, not been strictly adhered to, various departments have overflowed into the space of others, while late arrivals have been utilised to fill up gaps, independent of their proper place. Thus, for example, while several of the competition drawings for the Houses of Parliament at Rome are hung together, others are found singly in various parts of the exhibition, rendering comparison naturally somewhat difficult. The galleries are subdivided by screens, to give increased wall space, which is, of course, of the highest importance in an architectural exhibition, and particularly in Italy, where it is the custom to make competition drawings to the large scale of $\frac{1}{50}$, even for large monumental buildings, with details to $\frac{1}{10}$. The drawings are certainly not spread out, but are, on the contrary, rather crowded, so that many that are hung considerably above the line are not seen to advantage.

After an examination of the works of modern Italian architects, from the drawings and photographs of executed designs, we very forcibly realise the importance attached in Italy to the calling of an engineer and to the scientific side of the profession. An *architetto* is one who has not sufficiently advanced his education to enable him to earn the more honoured title of *ingenere ed architetto*, which is borne by all leading members of the architectural profession in Italy, and is the aspiration of the architectural student. Hence we see that, in competition designs, the drawings of the foremost men show carefully the ironwork, especially of the construction. This exaltation of the engineer probably accounts in a considerable degree for one of the predominant characteristics of much of modern Italian architecture; the estimation of architectural design as merely the clothing, more or less well fitting as the case may be, of the building, and not, as it should be, the vital essence of the whole structure. The engineering construction is not simply the articulation of the body, but the body itself.

This characteristic is, possibly, also largely developed by two other important factors in the history of modern Italian architecture; first, the extensive use of stucco for the formation of architectural features and decoration, and, second, the intensely eclectic character of modern Italian architectural design. The use of stucco,—in which, it must

be granted, the Italian workmen are experts, both as regards the durability of their workmanship, and their skill in modelling wet plaster *in situ*, naturally leads to dislocation in the construction of the building; first the *ingenere* designs and superintends the erection of the framework, the walls, floors, and roof; then the *stuccatore*, with the design and superintendence of the *architetto*, clothes the framework with its architectural adornment. Nor does the union of the *ingenere* and the *architetto* in the same man compensate sufficiently for the mischievous tendency to separate construction and design, which appears so prominent in this exhibition. We must, however, not omit to notice that there is among some of the younger men, especially the students of the Milan School of Architecture, like Sommaruga (whose design, in conjunction with Luigi Broggi, for the new Houses of Parliament in Rome, was illustrated in the *Builder* of the 20th ult.), a manifestation of a more healthy spirit of architectural design. Some of these men are evidently architects, in the best and fullest meaning of the title, and uniting thorough knowledge of construction with that of the vital principles of architecture, produce designs which have that essential unity of conception that can alone be accepted as true architecture. The exceedingly eclectic character of modern Italian architecture surpasses even that of contemporary English work. Not only are different styles adopted by different designers, but in the work of each individual, there is seen, very frequently, an attempt at the expression of architectural ideas in widely dissimilar dialects. Thus, for example, among the drawings exhibited by Gaetano Moretti, of Milan, whose premiated design for the new Houses of Parliament was also illustrated in the *Builder* of the 20th ult., we find, besides the originals of the design just referred to, a photograph of an executed design for a church façade in the Rococo development of Renaissance usually known as the Jesuit style, a design for a cemetery in a Byzantine manner, sketches for altars in late Italian Gothic of florid, ornate, and restless character, though exhibiting a great wealth of invention; several sketches for the façade of Milan Cathedral, with photographs of the completed designs, which are, of course, designed to harmonise with the Germano-Italian Gothic of the existing building; several sketches for tombs and mortuary chapels, some Greek, some Renaissance, one in French fourteenth-century Gothic, others in sculpturesque treatment. Moretti also sends designs and photographs of furniture, chiefly in Rococo and Baroco style, but excellent designs for the style, sketches for ewers and paten, showing an ability and versatility of idea that mark the genuine artistic impulse of the man.

Unfortunately, the eclecticism of which we are speaking is not confined to the adoption of various styles for separate designs, but occasionally in the same design we find an attempt to unite features borrowed from various periods, especially of the Renaissance, which too often leads to incongruities that detract from artistic effect. Without yielding entirely to the views of straitlaced and puritanical or academical architectural purists, it is sufficiently obvious that an attempt to combine detail of varied forms of architectural expression requires, if failure is to be avoided, a very nice sense of judgment and fitness in the selection of the component parts,—a sense that, in spite of the inheritance of good taste to which we might suppose the modern Italians were heirs, is occasionally absent in their architectural design. This demerit, however, it is but fair to say, is not universally, or even generally, found in the work of modern Italian architects, especially in that of men of the calibre of Moretti and Sommaruga. Eclecticism of style in Italy appears to be, to a certain extent, limited by a somewhat conventional appropriation of various styles to particular uses; thus, without any rigidity of selection, Greek, Romanesque, or Byzantine appear to be the favourite styles for cemeteries; Italian Gothic and Romanesque for churches; some form of Mohammedan art for Jewish synagogues; and various phases of Renaissance, according to the individual caprice of the designer, for public buildings, residential and business premises.

Together with eclecticism of design, there are among the modern Italians many varied forms of expression in drawing; the pencil, the pen, and the brush all finding their use in different hands. As compared with modern English draughtsmanship, there is nothing to equal the work of our best men with pen or pencil; the brush, on the other hand, is far more generally and more skilfully used. We may safely say that there is not a single drawing in pen or pencil in the whole exhibition which would give the draughtsman the faintest possible chance in the annual competition for the Soane Medallion or the Association Travelling Studentship; with the brush, however, there are very few of our students who could successfully compete with those of the Milanese school. In competition drawings, perspectives, though occasionally used, are rare; highly and realistically coloured elevations, with shadows accurately projected in the French manner, skies, back-grounds, and accessories taking their place. As compared with French draughtsmanship, the Italian work lacks refinement and delicacy of shading, but has instead very frequently a power and vigour of effect gained by strong contrast and the skilful use of accidental shadow. The varied methods of draughtsmanship in elevations may be thus described:—Drawings in pen-and-ink line entirely, including the shadows and window-openings; this is, to an English eye, very inferior in effect, and is particularly liable to degenerate into scratchiness, or what is, in our student *argot*, called "flick and dot"; various depths of tone are obtained by the use of ink of varying strength of blackness, but the method can hardly be considered a success, and usually accompanies second-rate design; then pencil-drawings in line, with faint tints of colour for the general surfaces, shadows, and voids; this is usually refined in effect, but frequently looks weak in competition work when opposed to more strongly-executed drawings; this method is often found as the expression of an academical character of design. More strongly-tinted drawings, either over pencil or ink lines, come next; these are finished either in monochrome or polychrome, and form the large majority of competition drawings; those in monochrome are frequently carefully finished, while the polychromatic examples aim rather at a picturesque effect. Lastly, we have the strong forcible methods of the younger men, especially of the Milanese students, in which monochrome or polychrome are handled with an extreme vigour of effect, which might readily descend to vulgarism if used by less consummate artists than Moretti and Sommaruga, and others of their fellow students, whose work we shall have occasion to notice in speaking of students' work. Sketch-designs are usually made in pen and ink or pencil, and never omit to give some indication of the shadows; they are usually made, it appears, with extreme rapidity, aiming at general effect rather than at detail, which is vague and indistinct. By students and the representatives of the older style, sketches are made in elevation for the most part; by many of what we may call the new school, of which the Milanese students are the great examples, sketch designs are made frequently in perspective, though not entirely so. Drawings of old work, made for the purpose of study, by students, are but poorly represented. The careful and thoroughly worked-out measured drawings, which we are accustomed to see in England, are absent. Measured drawings are few and far between, and appear chiefly to have been prepared for the purposes of book-illustration or for official records of historic monuments. Nor are free-hand sketches much more numerous, save for some few instances, such as the excellent collection by Professor F. Mazzanti, of Rome, chiefly of detail and "bits;" these are mostly in pencil, some in ink slightly tinted, except the examples of coloured decoration, which are, of course, of full strength. Even this example suggests the collection of a professor rather than the studies of a practitioner. Sketching old work must, naturally, appear somewhat of a waste of time to the student, who is deluged with the productions of the enterprising publishers and skilful photographers, who, both native and German, cater so largely for the continental student. That this is the cause of general lack of sketching study of old work is strongly emphasised by the fact that, what the men who do sketch mostly fancy is the early ecclesiastical work, which has been less fully illustrated by publications of phototype and other methods than the Renaissance work of civil and domestic character; hence sketching is the resource of the young church architect, or else is mainly a study of colour, either in decoration or as the accidental effect of time and weather.

Having thus summarised the chief points that command our attention in modern Italian architecture, we shall notice how these are especially exemplified in some of the most important work exhibited, and we shall call attention to the methods of solving some of the various problems daily presented to the profession by our Italian confrères in dealing with the design of edifices for particular purposes.

In an exhibition of professional work of the extent now gathered together at Turin, it must be sufficiently evident that the weaker as well as the stronger side of Italian modern architecture is presented, and we should therefore be careful to select for consideration and criticism, in any attempt to fairly gauge the position of Italy in art, the work of the leading and most prominent men.

As an example of the work of a leading man we may take the design for the new Law Courts at Rome, by Gugliemo Calderini, Professor of Architecture and Construction at the University of Pisa, which is shown in a series of elaborate drawings to the scale of $\frac{1}{50}$, which nearly corresponds to our scale of 4 feet to an inch. The principal façade has for its *ordonnance* three orders, Tuscan, Doric, and Ionic, in successive stages, treated with single columns engaged and planted on the face of wide pilasters except to the angle pavilions, where the columns are coupled. All the orders, with their horizontal lines, are continued round the flank and rear elevations, where they enclose two floors, the upper being a mezzanine, the windows of which are omitted on the front, it results that, in the principal front, the windows, which range with those on the flanks and are of similar detail, have above them a blank wall space which appears to crush the openings. In the centre of the composition of the principal front a great arch entirely fills the height of the upper order, and under this are coupled columns, capped with a broken pediment crowned with figures. This use of a gigantic arch for the central feature of a design seems to be a favourite device of modern Italian architects and frequently, indeed usually, spoils the scale of the remainder of the design. An example of the abuse of this feature may be seen in the design of Broggi and Sommaruga for the Houses of Parliament (*Builder*, September 20 last). The detail of the design we are considering shows a good acquaintance with the work of the past, being largely based on the style of Michelangelo and his contemporaries. The side elevations, which embrace two orders only, are decidedly the most pleasing, as here the lower order, which is rusticated throughout, assimilates with the basement, which is also rusticated, to form a substantial substructure for the upper order, which rightly is made the principal in richness and grace of design, without crushing the lower portion of the façade, which holds its own by virtue of its superior height and strength. In the principal front there appears to be no dominant part, and the rusticated portion looks too weak for the

superstructure, an impression which is intensified by the fact that the entablature of the lowest order is cut through to provide the height given to the large semicircular-headed openings of the entrances, the cornice only being a continuous horizontal line. The rusticated ground-floor assimilates with the basement, and thus looks too high for a subsidiary portion of the design, while at the same time it is too low for a principal story. The angle pavilions, which as before mentioned have coupled columns, are crowned with a blank attic, but neither this nor the blank wall space, owing to the manner of its disposition, are able to give repose to the design, a quality which is lacking throughout, although it should, doubtless, be an essential point in the design of a monumental building of this character. There is also a certain amount of incongruity in the combination of the Late Renaissance detail with the rigid classicality of the orders employed. The elevations are shown in heavily-shaded monochrome of cold brown tint, which, however, does not give the necessary dignity to the drawing. The whole design shows a knowledge of the detail of the past united with a lack of the true principles of design which is, we fear, but too characteristic of much of the work of modern Italian architects.

Another design by Calderini, for the national monument to Victor Emmanuel II., although not submitted in the actual competition, is nevertheless one of the happiest conceptions for this work illustrated in the exhibition. Too many of the designs place the statue of the monarch in an isolated position, with an architectural background too far in the rear; that by Calderini emphasises the statue, and at the same time brings it into connexion with the remainder of the design by setting it in a semicircular-domed apse, treated with a colonnade, which is continued to segmental bays on either side, the whole standing upon an acclivity approached by an imposing flight of steps. The design is spoilt by the introduction of a meaningless range of Corinthian columns, carrying nothing, connected by a band of masonry at about two-thirds the height of the shafts, carved with a weakly-designed ornament of festoons. These columns are intended to mask the exterior of the roof of the semi-dome, but are evidence of an impatience which did not permit the designer to grapple carefully and successfully with what, it must be granted, is a somewhat difficult problem to solve. Almost any other solution would have been preferable, even to leaving the roof of the dome in its bare simplicity. This design is shown in drawings finished in a warm sepia tint that is highly satisfactory.

The design by Professor Gherardo Rega for the same subject shows the statue in the open with a semicircular colonnade in the rear, reminding us of the colonnade of old Burlington House. The composition is placed upon high ground, approached by numerous steps, and the design is best described by the term "academical."

Another design for the Victor Emmanuel monument, and one which received a silver medal in the competition, is that by Pietro Berti, of Florence. This in the centre has a Roman triumphal arch, closely resembling what those of Constantine and Septimius Severus would be if the side arches were filled with masonry, having statues in front. The centre of the composition is flanked by straight colonnades, with a straight-lined attic over, and stopped by solid pedestals. The attic is sculptured, but is too high for the colonnade on which it is supported. The approach is made by a series of winding and returned steps, and the whole design is less overdone with figures, and is far more satisfactory than the majority, being much quieter and more restful in character. The statue, however, is too much isolated in position. It is remarkable that, among a people so attached to the theatre as the Italians, the designers should have failed to recognise the necessity for an intimate connexion between the scenery and the actor, between the statue of the King and the architectural background.

There are many other designs for this competition exhibited, but the majority follow closely the lines of those by Rega and Berti just described, and a full description of all would be tedious and a waste of space.

We may, however, mention that by L. Boffi, which differs entirely in *motif* from those already mentioned, and is besides one of the best examples of pen and ink drawing in the exhibition. Here the design takes the form of a square central tower, surmounted by a figure of Victory with laurel wreaths, and flanked by wings at a much lower level, decorated with sculptured subjects, the import of which is denoted by the superscription, "Sant. Martino," the famous battle, and "Unita Nazionale," the ever-memorable scene, to Italians, in the Parliament House. The figure of Victor Emmanuel is in the foreground, an equestrian statue, somewhat eclipsed by the monument, which is rather too important to form an appropriate setting or background to the central figure; this latter, indeed, is hardly more than a decorative accessory to the composition, of slightly greater weight than many of the other sculptured emblematical figures. The draughtsmanship is admirable, especially the way in which the sculpture is indicated, and the effective shading, which is free from rigidity and stiffness. These particular drawings show one strong point of many modern Italian architects,—the design of detail and accessories, especially in the free style of the Late Renaissance,—a point on which we shall have occasion to touch still further in continuing the subject in a future article.

NOTES.

WE observe with much interest that our Australian relatives are exhibiting in that quarter of the world the passion for exploration which may be said to be an hereditary quality of the English race. From a communication in the *Times* of Tuesday, we learn that the wealthy and large-minded colonist Sir Thomas Elder (whose portrait bust by Mr. Woolner we illustrated a short time since) has offered to furnish all the money necessary for a great exploration expedition into the centre of the Australian continent, on condition that he is satisfied with the scheme of such expedition, to be submitted to him beforehand. In a letter addressed to Baron von Müller, and read before the Royal Geographical Society of Australasia, at their meeting on August 22, he says in regard to the enterprise:—

"I have already referred to the importance of finding a thoroughly competent leader, as upon that much of the success of the expedition will depend. He ought to be a man not merely of pluck, courage, energy, influence over his men, but possess all the required physical qualities, and of such scientific attainments as will enable him to report advantageously on the topographical, geographical, botanical, geological, and other features of the tracts of land which he may travel over. But I need not expatiate at length on this branch of the subject, as no one knows better than yourself the special qualifications required by the conducting of such an expedition, if it is to be thoroughly successful. What I would like you to do is this,—viz., to intimate to the Melbourne exploration and geographical societies, and to the kindred societies in the Australian colonies, 'that I am willing to bear the entire cost.' Let a scheme be carefully prepared in concert with the best experts for the final important work of Australian land exploration, and transmitted to me, when, if approved, I shall immediately take steps to have the scheme realised at my own expense."

That Australians would not allow themselves to be beaten by the difficulties of inland exploration, or allow the interior of their continent to remain for ever a trackless desert, we have always felt sure. But what perhaps is of even more interest is the effort which is being made in connexion with the same Society for further Antarctic exploration. Baron A. E. Nordenskjöld, an Arctic explorer of note, has consented to take the command of an Antarctic expedition if the Australian colonies contribute a sum of 5,000*l.* towards the expenses. We could have wished that the Australians could have found a leader among themselves. England led the way under Cook in Antarctic exploration; it would be a fitting thing that it should be resumed by those of English race who are now so much more conveniently situated, geographically, for getting at the Antarctic region. But we wish success to the expedition, when formed, under whatever command.

WE print in another column an appeal from Mr. Penrose for funds to enable the architectural students of the British School at Athens, Mr. Schultz and Mr. Barnsley, to carry out the examination they are commissioned to make of the Byzantine buildings recently destroyed by fire at Salonika. We hope Mr. Penrose will obtain some substantial response to this appeal. It is of the greatest importance that trustworthy details should be obtained of the work before it is further destroyed, for all archæological purposes, by restoration.

THE latest phase of the strike in the shipbuilding trade (to which we have before alluded) is the acceptance by the Mayor of Newcastle of the position of mediator. Although a comparatively small affair at the commencement, this strike caused a great deal of friction in the trade, which has kept on extending, and it is still far from certain that a general strike of shipbuilders will not take place before the questions in dispute are settled. A large number of men have gone from Plymouth and elsewhere to take the place of the Tyneside strikers, and this importation of strangers has intensified the irritation among the disaffected. The plan proposed by the Mayor of Newcastle is that a Board of Conciliation should be formed, representative of all the trades engaged in the shipbuilding yards, with full power to deal with the present dispute. The success of this scheme depends upon whether both the shipwrights (who accepted the original award made by Mr. Burt) and the joiners, who struck against it, will agree to the proposal. It is stated that Mr. Burt was occupied for some months in taking evidence as to the practice of the trade, &c., so that his award was not given without good grounds; but it is certainly possible that a Board constituted in the manner proposed may arrive at a more equitable decision than a single individual. A necessity seems to have arisen for permanent Conciliation Boards to be established in all large industries, together with a central body to whom matters may be referred which the local Boards fail to adjust.

THE Architectural Association *soirée*, held in the Westminster Town Hall on Friday, October 3, to which we called attention in our last issue, certainly put all its predecessors into the shade. An energetic Entertainments Sub-Committee, with the help of a courteous band of willing exhibitors, transformed the large hall into a luxurious reception-room, where the guests were received by the President, Mr. Leonard Stokes, and the Committee, and where refreshments and the band of the Coldstream Guards contributed to the entertainment. The large hall and staircases were fitted up with electric light by Messrs. Rashleigh Phipps & Dawson, the current being obtained from the Westminster Electric Supply Corporation. The Association ask us to express their acknowledgments to the following firms, who contributed greatly to the general effect by exhibiting choice specimens of their manufactures, exemplifying the arts and crafts connected with architecture:—

T. Bontor & Co.	Hayward & Son
Collinson & Lock	Hindley & Sons
Dockrell & Co.	Jeffrey & Co.
D'Oyly & Co., Limited	Morris & Co.
Felix & Wayman	Pitman & Son
Fisher & Co.	Rottman, Strome, & Co.
Gillow & Co.	Thomas Wardle
Graham & Biddle	Woollams & Co.
Gregory & Co.	

An interesting collection of Class prizes and other drawings was exhibited on the first-

floor. The illustrations of Hypnotism in the Council-chamber, by Dr. George André, excited great interest and large audiences. The professional value of Hypnotism soon became apparent to all, for might not its influence be utilised in smoothing the anxieties of an architect's existence in convincing a client at the right moment that the plans before him really were what was best for the purpose, and the tenders received rather below than above the sum originally mentioned? There is yet time for "Hypnotism as applied to Clients" to take its place beside Professional Practice in the new Scheme of the Association, and we place the suggestion entirely at the Committee's disposal. The evening seems to have been a great success.

MR. ST. JOHN HOPE contributes to the October number of the *Antiquary* a short account of the recent excavations at Silchester. In one portion of the site have been found two large detached rectangular pieces of building filled in with clay and sand as if to form raised platforms for large buildings. There are indications of wall veneers of polished Purbeck marble, and the external walls were plastered and painted. Of the various small objects found, pottery and bronze and iron implements, the more important will probably be exhibited at the Society of Antiquaries' rooms when it resumes its meetings in November. Mr. Hope observes that such work cannot be carried on without money, and hopes that everyone interested in Romano-British archæology will send some contribution, however small, to the Treasurer of the Silchester Excavation Fund, Mr. F. G. Hilton Price, 1 Fleet-street. He adds that visitors to the site may depend on finding some of the Executive Committee on the spot, who will give them every information.

THE Dean and Chapter of Ely Cathedral set a good example to similar bodies by supplying visitors to the choir with a leaflet, on one side of which is a ground-plan of the choir, with numerals to indicate the monuments, and on the other the explanation of the figures, and a few brief notes as to the architecture of this part of the building. Such leaflets should be obtainable at all our cathedrals, for visitors do not want to be turning over the pages of a guide-book or architectural hand-book, as they move from one part of the building to the other, but such a leaflet indicates in a convenient way for the moment the features of the building. It is doubtful, in some respects, how far the natural curiosity to know to whom this monument was erected, and by whom that was placed in the building, should be gratified in a short account of this kind. The attention to often immaterial details tends to take away the thoughts from the main features and characteristics of a building, which are sufficient for the mind of most visitors. But, on the other hand, this same body should provide some seats outside this vast building. There is not one single seat on which a person can rest. It is essential that the external part of a building such as Ely Cathedral should be studied without haste, and it is most fatiguing not to be able to take a rest in the course of one or two hours' inspection of the building. There are many places perfectly suitable for such seats, and it is surprising that this want has not been before this supplied.

WE have received a circular from Mr. Hayman, President of the Working Men's Home Union, in regard to the proposed operations of that Society. The vagueness of the above appellation certainly needs some gloss. We understand from the circular that the two main objects of the Union are to obtain fair rents for working men's dwellings, and, secondly, to take care that such dwellings are kept in a proper sanitary state. We cannot but think that it would have been better to have aimed only at the latter object. We have no sympathy with landlords who charge exorbitant rents for premises which they let to working men, but it is perfectly clear that the two objects are entirely different, and that one would be quite enough for any association to attain. The first matter is one which is a good deal regulated by purely economic laws, for unless there is a great demand for house-room by artisans, it is obvious that the landlords could not obtain an exorbitant rent. Again, it is difficult to see how a society like this can make a landlord take a lower rent, except by some kind of business competition. But it is well within the power of such a society to bring pressure to bear on the Sanitary Authorities and on landlords, so that sanitary defects may be remedied. No one can fail to sympathise or to support such endeavours, and we would strongly urge on the Working Men's Home Union to confine their efforts to the making the homes of working men healthy. They will find that steady work in this direction will be fully as much as they can accomplish.

THE White Lead Company, Limited, was, as probably a good many of our readers know, brought out in May of last year with a good deal of *éclat*, and its shares were applied for many times over. Since that time it seems to have been under a cloud, and the promise of great dividends has not yet been fulfilled. From a circular recently issued by the Board, it would appear, however, to be now emerging from the recent gloom. That its promise should be fulfilled is a matter in some respects of public interest, since it is claimed for the method of manufacture adopted by the Company that it is quite harmless to those engaged in the process. Anything also which cheapens and yet keeps efficient materials of any kind is also useful. It is immaterial to us whether its shareholders find it a satisfactory concern, but for the two reasons just given we hope that the Board is correct, and that the enlarged works will enable the Company to carry out its original programme. At the same time it is well to point out that those who bring out industrial companies might as well state a little more frankly when their works are inadequate for the purposes of the business, for we take it that no one who joined this company expected to see October, 1890, without having received a dividend, and that so many months were to be occupied in putting the works into a satisfactory state.

IT is satisfactory to see that District Surveyors are turning their attention in a practical manner to the subject of sky-signs, and that the Bovril Company have been summoned by the Surveyor to the St. Luke's Vestry for projecting a gigantic "B" over the street so as to constitute a danger to the public and an infringement of the Local Metropolis Act. The magistrate took the same view, and fined the company 40s. We fear that the law as at present existing cannot interfere with letters that do not project beyond the frontage; but it is something to get as much check on sky-signs as this. Perhaps some District Surveyor will next take up one of the cases of affixing huge boardings for advertisements in front of buildings, as alluded to in our correspondence columns of the last two weeks, and see if a conviction cannot be obtained on that score also.

IN a letter printed in this number Mr. W. P. Buchan refers to one point to which we have often thought attention should be directed, viz.: the inadequate quantity of water frequently allowed for the flush of waterclosets. Considering how important it is, in a sanitary point of view, that there should be an adequate flush of water to carry matter quickly to the sewer and to prevent the chances of stoppage in the house drain, especially in crowded cities, the restriction which water companies often endeavour (not always successfully) to place on the amount of water allowed to pass at each discharge, by means of what are called "waste-preventing supply cisterns," is a dangerous one, and a very false economy as far as the interests of the public are concerned, though it is no doubt an excellent one in the interests of the water companies. This is particularly the case in London. We have known cases in London houses (and no doubt there are many such) where the water admitted by the waste-preventer was absolutely insufficient to cleanse out the pan, with consequences which may be imagined: and the matter is rendered still worse by the slow filling which is allowed to the waste-preventer, which is not ready for use again till perhaps ten minutes after the first discharge. No doubt many pans are so unscientifically constructed that the full power of the flush would not be obtained in any case; it is not only a question of how much water, but how it is introduced. But it is far better to allow a wide margin in the supply of water and allow the possibility of a certain amount of waste, than to risk the clogging of the drain, with all its disagreeable and insanitary consequences. Some London water companies endeavour to enforce, as far as they can, the employment of a supply cistern admitting only two gallons at each flush, a quantity which is most inadequate. Such a restriction ought not to be countenanced by the sanitary authorities of any city. Mr. Buchan, one of the most experienced of sanitary experts, considers three gallons too little, and advocates four, an error on the right side at any rate. But the two gallon "waste-preventer" is an enemy of public health, and should be put down.

THE report in last Saturday's *Times* on the "Arts and Crafts Exhibition" is a characteristic example of the "Philistine" point of view in these matters, of which the leading journal is so faithful an exponent. As our readers know, the Arts and Crafts Exhibition was set on foot with the express object of doing away with the wholesale production of what is called art by large firms, behind whose name-plate the real artists, where such existed, were hid in obscurity, and of bringing forward the personal work and personal credit of the individual artist in such things as furniture and wall-hangings. Visitors to this year's Exhibition, as noted in another column, have already felt disappointed to find that the shop element was invading this Exhibition also, and that we have collections of furniture, with the names of well-known *entrepreneurs* of art-workmanship placarded above them, just as we may see them in every ordinary "International" or "Industrial" Exhibition. But to the daily press intellect this is the great point in the present Exhibition. "Regarded as a whole, the present Exhibition is an improvement upon its predecessors, especially as the names of some important firms who have hitherto held aloof from the Society are to be found in the catalogue"; and the reporter ("critic" one cannot call him) goes on to pick out costly pieces of furniture which are labelled with the names of "important firms," but which are in fact among the commonplaces of the Exhibition, and represent only the kind of thing which money can always purchase. In one instance the *Times* pitches on an original piece of work, the "mahogany settee with canopy," which is designed by Mr. Mackmurdo; but not a word is said as to the designer, it is only referred to Messrs. Wilkinson & Co., one of the "important firms," for whom it was designed by Mr. Mackmurdo. To the daily press intellect and its public the question is not, who designed and made an excellent piece of work, but, "who sells it?" And if it bears a well-known selling name it is worth mention; otherwise not. There are in the same room with the exhibits of the "important firms" about half-a-dozen pieces of furniture showing the thought and the work of an original artist; but the reporter cannot see these; they are not labelled with any name known on the shop-fronts of Oxford-street or Bond-street.

IT is much to be regretted that *Punch* should have committed itself to the ridiculous misrepresentation of facts implied in a contribution to the last number under the heading "How it is done," in which a "Surveyor" (official) is represented as "taking drinks" with a jerry builder whom he has had to warn about some unsound and illegal construction, and squaring the matter under the influence of drink and good fellowship, and a consideration in money, "as a little addition to his salary." *Punch* being a journal published and no doubt mostly written in London, there can be little doubt that the satirist imagines himself to be representing the possible corruption of a London District Surveyor. If he had taken any trouble to ascertain facts before posing as a reformer of abuses, he would have discovered that the District Surveyor is not a salaried official, but usually an architect in good position and practice on his own account, and deriving his Surveyor's income, in addition to that arising out of his private practice, from fees in cases reported and dealt with, and that (supposing him capable of putting himself in the position represented) he would be probably acting against his own pecuniary interests in consenting to overlook a case of illegal construction. Perhaps, however, *Punch* was only speaking in a prophetic mood, with an eye to the time when the County Council shall have abolished the high-class architect from the ranks of its District Surveyors, and reduced them to the position of small-salaried officials forbidden to undertake any other work. Then perhaps the scene depicted in *Punch* might be within the bounds of possibility—but not till then.

THE nursery-gardens of London,—bright, fragrant, little spots, laid out here and there in the now predominant desert of houses,—have not as yet, so far as we can at this moment recall, inspired the recording voice of their own *vates sacer*. Perhaps they have been deemed to be too insignificant: yet they owned a certain charm of their own, nevertheless. A garden, said Charles Lamb, is always a garden, and doubly so in London. Thus, too, writes Gray: "And so you have a garden of your own, and you plant and transplant, and are dirty and amused. Why, I have no such thing, you monster; nor ever shall be either dirty or amused as long as I live. My gardens are in my windows, like those of a lodger up three pair of stairs in Petticoat-lane or Camomile-street, and they go to bed regularly under the same roof that I do."* They flourished chiefly in Old Brompton, Paddington, and St. John's Wood. Many of these have gradually disappeared within our memory. In the last one or two years the nursery-garden in the Wellington-road, St. John's Wood, has been taken for the practice wickets and covered tennis-court of the M.C.C. at Lord's cricket-ground. Smith's nursery, at the higher end of Richmond-road, by Thornhill-road, Barnsbury, was to have been covered with houses. But the Islington Vestry bought the land for 2,000*l.* (of which sum the late Metropolitan Board of Works agreed to contribute one-half), and opened it last summer as a public recreation-ground, by name of Thornhill-gardens. A different fate overtakes the Pine Apple Nursery, Maida-vale, Messrs. Hooper & Co. (Limited), having acquired a ninety-nine years' building lease of that site.

MR. CARBONELL, the Vicar of Fairford, in Gloucestershire, has, we observe, been obliged to make a further appeal for funds to pay for the preservation of the church, and more especially of the stained-glass windows. It is to be hoped that his appeal will be generously met, and we can only suppose that abundant funds for the purpose were not before forthcoming because the great beauty and inestimable value of the Fairford windows is not sufficiently known. As a matter of fact, they are priceless; no such series exists anywhere else in England, and no money could replace them. Many years ago—1826—Cobbett, in one of his "Rural Rides," thus writes of them: "Its windows of beautiful stained-glass had the luck to escape not only the fangs of the ferocious good Queen Bess, not only the unsparing plundering minions of James I., but even the devastating ruffians of Cromwell." There is no reason why, with proper care, these unique windows should not still last for many generations; but if they are to do so, each generation must take care that they are handed down intact, and it now rests with the present generation to do their duty.

* Letter to the Rev. Norton Nicholls, dated from Pembroke College, June 24, 1769.

WHAT is called "the Vyrnwy Hotel Scandal" at Liverpool seems to have furnished an unusually apt illustration of the folly of entrusting house planning and designing to men, however otherwise clever, who have made no special study of it. It appears from the report in the Liverpool *Daily Post* of the Council meeting held last week, that it had been decided to build a small hotel at Vyrnwy, where the new Liverpool reservoir has been made, at a cost of 5,000*l.*, and with the mistaken idea of economy, they put the matter into the hands of their very able water engineer, Mr. Deacon. The economical result appears to have been that the hotel which was to have cost 5,000*l.* has cost from 11,000*l.* to 12,000*l.*; the architectural result has been that the landlord, who was to take the hotel over on lease from the Corporation, refuses to sign the agreement on account of the bad planning and arrangement of the house. In a letter which was read at the Council meeting he complains that the cesspool for drainage, which would have to be cleared out from time to time, is within forty yards of and in sight of the drawing-room window, and abuts on what would be the favourite walk of the hotel grounds; that the cottages in connexion with the hotel contain no sleeping rooms except attics in the roof, and are therefore practically uninhabitable; that the heating apparatus, "from its ill-judged and awkward situation, close to the dining-room door and bar, causes a great nuisance by emitting such noxious fumes when it is opened for filling, as to annoy many of the guests who have stayed here, besides the ash and dust which often cover the hall furniture and bar-fittings;" and, to crown all, that the cellar for the heating apparatus is placed between the wine and beer cellars! It may be doubted if even Lord Grimthorpe could have beaten that. We should advise the Liverpool Water Engineer to retire from practice in house-planning, and the Town Council to make a memorandum that when next they want a house built for letting purposes it may be cheaper in the end to employ an architect who has some knowledge of the subject.

SIR E. WATKIN has been lecturing at Wrexham on the Channel Tunnel, and concluded with the remark that "they had reason to believe that there was no country in Europe except our own where any party was to be found that would not approve and welcome the construction of such a communication." Precisely so: he could not have stated the case against it a more terse and pithy manner.

THE PUBLIC LIGHTING OF LEWES.—On the 1st inst. a meeting of ratepayers was held at the Corn Exchange, Lewes, to consider the question of the lighting of the borough. The Mayor, Alderman White, presided. For some time past, it is stated, there has been a general feeling of dissatisfaction both with the quality of the gas supplied to the public lamps and with the price charged for the same, and the discontent has found expression in a demand either for a better and cheaper service of gas, or for the introduction of a superior system of illumination. Speeches were made by Alderman Farncombe (who explained the position of affairs), the Hon. A. Brand, Mr. T. de Castro (Chairman of the Gülcher Electric Light Company), and others. The introduction of the electric light was strongly advocated by some of the speakers, but some fears were expressed as to its successful maintenance. The meeting was ultimately adjourned for a fortnight.

THE ARTS AND CRAFTS EXHIBITION.

THE third exhibition of the Arts and Crafts Society, which has opened this week in the New Gallery, is hardly equal to the two which preceded it, and we fear there is evidence of some departure from its original lines. In the first two exhibitions we had the satisfaction of seeing designs for furniture and decoration exhibited purely as designs, and on the same footing as pictures in a high-class exhibition. This year we find that the "furniture firm" has invaded the exhibition; we have a partitioned-off room of furniture devoted to a special firm, just as we see at industrial exhibitions, like the recent ones of Glasgow and Edinburgh, &c. Other furniture shops are prominent on the various labels; there is a profession of giving the name of the actual maker and designer (not always carried out), but this is in subordination to the name of the seller. If this system is allowed to invade the Arts and Crafts Exhibition, there is an end of all its real motive and function. What have these names of furniture-shops to do with art? It is just as if, at a picture exhibition, a picture-dealer's name were put centrally in the catalogue, and the painter's name as a sub-heading under it. We observe also that one exhibitor (who is a member of the committee too) has tacked price-cards on to his exhibits! Unless this kind of thing is stopped with a strong hand, the Arts and Crafts Exhibition will degenerate into a mere æsthetic bazaar, of which we have plenty already, and will lose its distinctively artistic character and its very reason for existence.

The present exhibition is arranged somewhat differently from the preceding ones. The cartoons for mural decoration and windows are collected in the South Gallery (where the catalogue numbers begin); the West Gallery is mostly given up to textiles, and the largest room, the North Gallery, to furniture. In the South Gallery a cartoon by Mr. Burne Jones (8) for a series of nine lights for a window of Jesus College Cambridge, occupies a central position; this and some other designs of his are again all catalogued under the head of "Morris & Co." who executed the work; an entire inversion of the proper order of things. The window represents the ninefold hierarchy of angels according to mediæval classification, one figure to each light, and is very similar to the same artist's painting of the "Days of Creation"; mild-looking figures all with the same rather melancholy expression of face. A fine colour effect will no doubt be obtained by the wings and drapery, in the executed windows, but there is something very feeble intellectually in this conception of angels; how different from the powerful beings whom Raphael produced as angels. The first figure in the row holds a drawn sword which he looks as if he would never have strength to use. There is a weak mannerism in this style of art, for all the grace of pose and drapery, which will cause a future generation to marvel at the sentimental taste which was satisfied to admire it. Mr. Madox Brown's cartoon for one of the Manchester Town Hall paintings, "The Baptism of Eadwine" (22), is a far more robust piece of work, distinguished by excellent draughtsmanship, though some of the figures, notably the queen and her children on the right, look too much like modern people arrayed in ancient garb. The grouping of the figures so as to give all the incidents of the scene and at the same time preserve the flatness of composition proper to mural decoration, a point in which the artist is a master, is admirably carried out. Mr. C. W. Whall occupies the centre of the west wall with a cartoon for a three-light cemetery chapel window, flanked by two other designs for part of a memorial window, of which the one representing St. Christopher is a fine design, the principal figure very good, and the attempt to convey the effect of water in a manner suitable to stained glass work is very successful. There is a danger, in the decorative treatment of sacred subjects in somewhat rebellious materials, of reducing them to mere experiments in conventionalising, which is certainly not avoided in Mr. Heywood Sumner's sgraffito design for Clane Church, Kildare (2), representing the Baptism of Christ. The principal figure is stiff and expressionless, the water is indicated by concentric dark and white rings drawn in perspective round the feet of the figure, the palm trees above are conventionalised into shapes that are not beautiful, and one is chiefly im-

pressed by the cleverness of the designer in this kind of translation of nature into ornamental patterns. The companion work (54), "The Resurrection," or rather the two Mary's and the angel at the sepulchre, is much more successful, as the decorative lines are finer and the figures freer in line.

Among minor works in the same room is a cartoon for a wall-paper by Mr. Walter Crane, called "Corona vitæ," consisting of a large repeating pattern partly composed of figures, and a grandly-designed frieze of angels whose wings are in a decorative sense splendidly treated, and in a manner exactly suited to the material. The paper itself (by Messrs. Jeffrey & Co.) is hung in the north gallery, where the frieze loses its effect through being treated in flat tints in ordinary colouring, while the lower part of the paper is resplendent in gold; if this is intended to be the finished effect of the paper, it rather kills the frieze, which is the finest portion. We observe that against Mr. Walter Crane's designs his name always appears in the central position on the page, though we presume Mr. Crane does not *make* wall-papers, any more than Mr. Burne Jones makes stained-glass; the catalogue is very inconsistent in these matters. Mr. Frank Murray, again takes the central place as the artist of the two decorative cartoons for a Marine Insurance Office (21, 28), Salviati's name appearing modestly in small letters as the executant. Why are not "Morris & Co." content with the same arrangement in similar case? The cartoons represent "Ancient and Modern Shipping," not a very good subject for decorative mosaic, but this is a praiseworthy attempt to give a little meaning as well as colour to the decoration of a business building; the design for the building was exhibited in the architectural room at the Royal Academy. Among other exhibits in this room may be mentioned Mr. Dressler's bas-relief from a design for the centre of an altar-piece by Mr. J. D. Sedding "The Nativity" (75); the same sculptor's little design for the back of a hair-brush to be executed in silver, showing a figure of a mermaid in bas-relief; Mr. A. Silver's design for cretonne in three colours (31); Mr. Bladen's design in water-colour for stained glass (42), a profile of a fine female head with the flowing hair partially filling up the background; and Mr. Selwyn Image's design for a stained window for a drawing-room (23), in charcoal and chalk, a very bad medium for conveying the idea of stained glass effect; we happen to have seen the design in execution, where the colour effect is very rich and the detail very original, but the design is ungraceful in its general lines, or rather it has no general lines, it is a set of patches of colour, decorative only as colour and not as form. The case of bindings by Mr. Cobden Sanderson contains some exquisite work (88), especially the rich little copy of "In Memoriam," but we should fear that such bindings can only be produced at a cost almost prohibitive to most owners of libraries.

The textile exhibits in the West Gallery illustrate the divided feeling which exists at present between the partially realistic and the purely conventional and symmetrical treatment of foliage forms in embroidery. The gallery contains two very fine examples of these two apparently opposed systems. One is a curtain embroidered on blue linen (subject, "Fruit Tree") designed by Miss May Morris and executed by her in conjunction with Miss Yeates and Mrs. Emery. This is a sumptuous rendering of a fruit tree with the flowers and fruit treated in irregular masses, with spaces between; a more conventional type of acanthus-like foliage worked in outline runs through the whole as if to bind it together. The more purely conventional method is shown in Mr. W. Morris's design for wall hanging (151), coloured and darned by Miss (?) Catherine Holliday. This is a symmetrical flowing design in immense acanthus-like leaves which dispart from a centre and curl round either way; it is a grand-looking design, though it may be just a question whether this scale of leaf is not rather too large and tends to dwarf the scale of a room of ordinary size. This tendency to large and too *prononcé* detail in work of this kind is illustrated here and there in other pieces of work in the room, as in the embroidered "firescreen or cushion" (115) designed by Mrs. Hallward, which is powerful but far too "loud" in effect. Among the larger textile works is a fine piece of silk embroidery by the Leek Embroidery Society, one of the numbers 96, 97, and 98; the catalogue does not distinguish. Mrs. Thursfield exhibits a bed cover embroidered in Tussar silk, of a pattern taken from the ceiling of a room in the house of Orchomenos, Bœotia; the early Greek spiral ornament used as a diaper, with a border of circular pateræ. This is effective and pleasing, though it is not exactly the kind of detail to select for textile work, being too architectural in character. The wall hanging designed by Mr. Heywood Sumner and executed by Miss Mary Augusta Smith, representing "Earth, Air, Fire, and Water" (127) is curious and clever, but has the objection that we find in the same designer's sgraffito of the Baptism of Christ; the forms and lines are not pleasing in a decorative sense. Mrs. Thackeray Turner's "Embroidered curtain, worked on hand-woven Assam silk in Morris & Co.'s crewels" (166), is an example of the style of foliage design which approaches nearly to realistic work and avoids all symmetry or conventionality of arrangement, except in spacing the design so as to distribute it equally over the ground, which is very little covered, the design meandering over it in open lines. The tone of the ground is very pleasing, and the whole effect quite as decorative as in some of the very richly worked examples in which the whole ground is covered. Miss Humphrey's dinner-table centre "worked in silks on white brocaded satin" (124) is an example of the charming effect which may be produced by working a design on a ground which makes a subordinate design beneath the principal one; the effect is very pretty, and the foliage of the border design, in colour silks outlined with *eloisons* of gold thread, is a beautiful bit of work. Miss Gatton's coverlet in appliqué work designed by Mr. H. Home (143), has a border of conventionalised poppies, with the central part ornamented by the repetition of the words "Quid est somnus gelidæ nisi mortis imago," arranged in squares of decorative letters with blank spaces of ground between. There is a curious and original fancy in this, but the sentence is not a very comfortable one to place on a bed-cover; and why repeat a facsimile of it over and over again, when each repetition is a separate piece of hand work? Among smaller things may be mentioned a bit of silk embroidery by Miss Clara Day from Mr. Lewis F. Day's design (118), a collection of cretonnes (100), exhibited by Mr. T. Wardle, some of them reproduced ancient designs, others by various designers who are mentioned (they vary much in merit, but some are very good); some dessert d'oyleys embroidered in silk with small conventional flower designs (135) by Miss May Field, and three side-board cloths in different Norwegian styles (138*a*) by Miss Julie Nörregard.

The West Gallery contains also a few pieces of furniture of some individuality. The chimney-piece designed by Mr. Lethaby and exhibited by Messrs. Farmer & Brindley looks rather as if it were intended to exhibit specimens of marble, but the refinement of the thin shelf at the top, with its delicate curves and small moulding, should be noted. A "Presidential Chair" designed by Mr. Ashbee and executed at his School of Handicraft, we give a sketch of (see lithograph); the characteristic portion of it is the embossed leather back, laced on to the framework so as to give play to it and leave an open *jour* between the leather and the woodwork. The lower portion of the chair is somewhat too ostentatiously simple, and thereby is out of keeping with the ornate character of the leather work. Otherwise it is of interest to see well-designed plain furniture, in regard to which we give a sketch of Mr. Spooner's sycamore sideboard (238), a good workmanlike example of a "cottage" sideboard, with a very pretty band of slightly-sunk floral ornament running across it (too small to be shown in the sketch). Interesting for the same reason is Mr. F. Madox Brown's "Chest of drawers for workmen or cottager" (307) in the North Gallery, of which also we give a sketch. The handles for pulling the drawers open are sunk in the drawer fronts, the rounded back of the sinking being gilt; on opening a drawer we perceive that this necessitates a covering-piece being fixed inside, producing a couple of excrescences in the interior of drawer, which looks awkward; but at all events the pull in opening the drawer comes on the solid front, and not on an affixed handle; and we all know what a tendency the handles of ordinary sets of drawers have to come off. In the West Gallery is also a very characteristic table (236) designed by Mr. Lethaby for a piece of green porphyry which forms the table surface, the design being made to fit the shape of the porphyry slab: we give a sketch of this (see lithograph).

The North Gallery, as observed, is devoted to furniture, and there are some very rich and elaborate pieces of work shown out of the stock of some large dealers. In Messrs. Collinson & Lock's exhibit all the articles are designed by Mr. G. T. S. Lock, and the executants' names are given; the execution is all admirable and the design unimpeachable in a general way, but it just wants that individuality which an artist turning his attention to furniture can put into such work, and it is for this that we come to the Arts and Crafts, not to see cabinet-makers' art, however good of its kind. The same remark applies to the sideboard exhibited by Messrs. Gregory & Co. (359), with the names of four workers appended to it; it is satisfactory that the movement initiated by the Arts and Crafts Society has led to some large furniture dealers admitting the propriety of giving the names of the actual designers and workers; but this sideboard still has the air of the furniture shop about it; it is only like many other such things that one sees, furniture worked up to a certain degree of richness of effect and costliness, but a mere repetition of old ideas and old details that form a cabinet-makers' stock-in-trade.

Some few things may be mentioned which illustrate the difference between artists' and cabinet-makers' design in furniture. Mr. R. T. Blomfield's mahogany corner cupboard, inlaid with snake-wood and ebony (311), is one of these; essentially an architect's design in its general form and the treatment of details; it is executed by Mr. John Finch. Another is the mahogany writing cabinet designed by Mr. Ernest W. Gimson (313), a charmingly original bit of work, very simple in its lines, and with one bit of inlay ornament forming a circle of enrichment in the middle of the otherwise plain front, Artistic effect is not necessarily produced by covering a thing all over with ornament, as cabinet-makers imagine. The cabinet designed by Mr. Lethaby and executed by Mr. A. Bowen and Mr. T. Ward (316), is another example of work thoroughly artistic in feeling though entirely without ornament properly so called; it produces its superior effect by superior workmanship and the care with which all its lines are set out. The "Bachelor's Sideboard" (319), designed by Mr. G. Jack, is very well planned for its purpose and in excellent taste in regard to design. It is exhibited under the name of "Morris & Co.," as is the very different-looking oak cabinet standing by it (323), and designed also by Mr. Jack. This is a highly picturesque-looking piece of furniture, consisting of a chest of drawers below, a table-top with a small plain cabinet at the back, which latter forms a kind of pedestal for a great oversailing coffer at the top, the front of which is enriched with a carved frieze. There is a very fine effect about this; it impresses one as if it came out of an old picture; but the coffer at the top does look rather top-heavy. The large mahogany settle with a canopy over, designed by Mr. Mackmurdo (289), is noticeable for the treatment of the posts or colonettes which form the supports at each end, with their solid plinths with partially rounded faces; the manner in which the legs under the framework of the settle are set back so as to be out of the way is another little practical point worth notice. A large mantle fitting of teak (333) is exhibited under the name of Liberty & Co., but with no name of either designer or workman; this is an attempt to work in the details of Egyptian architecture, the overmantle being treated with miniature columns and lotus capitals, while above is a cornice with the usual section of Egyptian cornice, but immensely magnified as compared with the columns. To the architectural eye this is an absurdity; the best portion of the design is the repoussé copper work forming the face of the fire opening. Two chairs which go with it are copied from a well-known example in the British Museum. We should not omit to notice also the very characteristic little "Billet-doux" screen by Messrs. H. & J. Cooper, with painted panels by Mrs. Jopling, and the inlaid walnut coffer and bench designed by Mr. Lethaby (417), a piece of work with the feeling of the Renaissance in it, and with some beautiful floral inlay work on the sides. We notice also in the same gallery an effective frieze panel

in plaster by Mr. T. R. Spence (371), of which a sketch is subjoined.

We omitted to mention in the West Gallery the great fireplace at one end of the room, the joint design of Mr. Wilson and Mr. Pomeroy. This consists of stumpy marble columns carrying a ponderous overmantel in aluminium, decorated in relief with a figure of Undine rising amid a mass of conventional foliage; the side portions are differently toned and treated, and suggest water and fishes. The central portion is very boldly modelled; the capitals and columns unfortunately have rather a clumsy appearance. In the entrance hall there are some good things, of some of which we give sketches (see lithograph). A piece of frieze designed by Mr. R. T. Blomfield, and in which no less than four artists have collaborated, hangs on the gallery railing, of which we give an illustration; also by it a very boldly-modelled heraldic panel (477) by Mr. W. Aumonier, of which we give a sketch, and which is intended for that fine house of "Rhinefield," Hants, which was illustrated in the 1889 Royal Academy in a drawing published in our pages on August 17 of that year. Another heraldic sketch is a lion designed by Mr. J. D. Sedding (see illustration). Mr. J. D. Hunt exhibits a cast and wrought lead wall cistern (472) of which we give a sketch, designed by Mr. R. T. Blomfield, an altogether novel and peculiar bit of work, decorated with gilt dolphins in low relief meandering over the lead ground. We give also a sketch of Messrs. R. A. Bell and G. Frampton's "Panels for an Altarpiece" (476), in which the kneeling figures in the upper panels, on either side of sacramental cup, are very graceful in pose and sentiment; we are not sorry however to read the note that these panels are executed in a church near Liverpool "differently coloured," for the colours here are sickly and ineffective. Among other objects in the hall is a marble chimneypiece (466) rather remarkable for neatness of execution than originality; a lion in mosaic by Mr. T. R. Spence (480) shown in the subjoined sketch; a powerfully modelled

wrought-iron newel and panel for a staircase designed by Mr. W. A. Fenn—a bit of classic wrought iron, free and powerful in treatment; a small wrought-iron music-stand adapted from an old design (465) by Mr. A. W. Batershell; the Ellison challenge cup (511) in cast silver chased and repoussé, by Mr. T. Erat Harrison, of which we give a sketch, it is very good in general form, but the details of modelling seem a little wanting in crispness; and cases of their respective wares exhibited by Messrs. Powell, the Murano Glass Company, and Mr. de Morgan. The collection of the latter contains some very fine work in pottery, both as to colour and design. The Cantagalli firm of Florence also have a case of their pottery, which is admirable enough both in colour and design, but then it is a sheer imitation of Renaissance work, and nothing more.

The balcony contains a number of small but pretty and interesting things; book illustrations and ornaments by Mr. Walter Crane, among others a selection of original drawings for "The Book of Wedding Days," a very pretty variation on the old-fashioned "Birthday Book" idea. Mr. Whall exhibits a frame of designs showing what can be done in decorative effect by lead-light glazing (for Bank screens &c.) without any colour (576); it is a new idea of which something may be made. In the table-cases in the gallery are some admirable examples of printed books, notably those from the Chiswick press; books which it is a pleasure to look at for the mere neatness and finish of their pages.

There are plenty of things that are interesting and pleasant to look at, but we fear there is some falling off in the success of these exhibitions both in regard to the contents and the attendance. The introduction of anything like the shop class of exhibits is, as we have already observed, a mistake which will prove fatal if not corrected; we can get that kind of exhibition anywhere; but simultaneously with this there seems to have been a falling off in interest on the part of fickle and changeable London society; the private view was by no means crowded, and the rooms have been but very sparsely attended since. Both facts are disappointing, for when the first of these exhibitions was started we regarded it as a new and most interesting form of art exhibition, filling a real want and which, from the great interest it aroused, seemed likely to have a most prosperous career and to be a very good influence on art-handicraft. It has given a stimulus to this class of art already, but there should be a rally round it of those who are real artists in design: it cannot be kept up by drawing on furnishing firms, of whatever reputation and wealth.

ON THE TECHNICAL EDUCATION OF ARCHITECTS.*

Another branch of study, not included among the Institute subjects of examination, but of no small value to the student of architecture, is archæology. In fact, the architect has to study the buildings of the past, much in the same way as the archæologist studies the whole life and work of past times. To those who have the time for it, the study of archæology can be warmly commended, and we have in this college special facilities, as you all know, for the pursuit of that study under Professor Poole, whose lectures and demonstrations take a wide range.

We now approach a group of subjects where the instruction received in any college cannot of itself suffice, but must be supplemented by practical experience, but where the technical study for the most part forms the subject of the work of class B. for the study of construction which I conduct. In that class all the more important building materials, such as wood, stone, slate, marble, brick, terra-cotta, lime, cement, and iron are taken up in succession, their strength, weight, durability, and other properties described, and the defects and excellences of bad and good specimens are pointed out, and the part they play in building construction is explained. The general principles of construction, trussing, walling, arching, vaults, domes, and so on are also taken up in succession, and are passed in review, and thus the whole of the subjects named in that part of the programme for the examinations which deals with materials and construction are in turn dealt with. No examination papers have been yet published to show exactly what the scope of the intermediate examination is to be, but, judging from the published programme, it appears to me that a student going through this course, and doing a proper amount of preparation work at home, ought to be well able to pass that part of that examination, and the lectures will be adapted to secure that aim. No academic course alone is to be relied on to impart that practical knowledge of construction which the final examination requires, but the course here will suffice if supplemented by home work, and by diligent use of the opportunities which are enjoyed during three or four years in an office, with access to works in progress, to prepare the student for passing that examination, so far as the building subjects go.

At the same time that I give this statement of the work of one Construction class, I am bound to add that it is impossible in a single course of lectures, and difficult for a single Professor, to pursue the study of all the numerous and very various known building materials as far as it is desirable, in some cases at least, to push it. Accordingly, that part of the course of Engineering and Mechanical Technology can with advantage be taken by architectural students, in which the manufacture of iron and steel, and the strength of materials and structures, forms the subject; and also that part of the course of Chemical Technology which covers the technology of building materials. I have already alluded to geology, but ought to add here that those students who are acquainted with that science in its main outlines will yet do well to take the course of lectures on Economic Geology, for the sake of the information they will afford on the geology of building stones.

Passing now to the subjects connected with architecture as an art, the instruction given in the Architectural A or Art class takes up the subjects required for the art side of the examinations, but, as in the case of the science subjects, they must be supplemented by drawing and measuring existing buildings, and by other study. In order to enter for the Intermediate Examination, the student has to do an amount of preliminary work which will be of great value in making him familiar with the forms, features, and ornaments of Classic and of Gothic art, and it will usually be best for him to do that in the office where he is a pupil. Here, in the class-room, the history of the art is pursued, beginning with Greek and the styles on which Greek is founded, and then taking up successively Roman, Basilican, Byzantine, Romanesque, Gothic, Renaissance, and modern art, and, in addition to the history, pointing out the distinctive qualities and features of each, and some of the principles of design which were dominant in the successive periods. It has been my custom, and I intend to follow it in the coming session, to take Greek architecture more in detail than any other part of the course, partly on account of the great importance of the subject, as at the root of almost all architecture since, and partly from the circumstance that it lies in smaller compass, and it better admits of a somewhat thorough examination than any other style.

Drawing, though left to a late part of the lecture, is a subject of which the importance cannot be overrated. As I have often pointed out before, drawing in three ways is the servant of the architect. He first learns to know all the forms, features, and details of buildings by drawing them, and learns how buildings are planned and contrived by making plans and working-drawings; in short, it is through the use of the pencil that he fills his mind, hand, and eye with the material out of which any designs of his own must be made. Secondly, the pencil is the instrument which assists,—nay enables,—the architect to design his buildings and their details. The most original mind could not go far if prohibited from working pencil in hand, and required to think out the entire idea of a proposed building before putting a line on paper. Thirdly, the pencil enables the architect to prescribe what to do to the workmen who will be engaged erecting his building, or preparing portions of the fittings of it so precisely that they fall into their place exactly, and to make clear to his clients what the proposed buildings will be like. Without good, exact, and complete drawings, the modern rapid method of erecting buildings would be simply impossible; and though small and plain structures can be built,—as probably English parish churches were previous to the fifteenth century,—practically without drawings, the mode of procedure and the nature of the buildings were quite different from what we have to deal with.

In order to be a good architectural draughtsman, with cultivated eye and hand, a man must learn something of what is called freehand drawing, and it is best that he should begin with it. He who, when he commences his acquaintance with drawing, has a square and rule and compasses put into his hands, is never likely to go alone without them, and is never likely to learn to use them as an artist should. A good draughtsman is made by mastering the drawing of the human figure from the flat and the round, and where practicable from the life

* Being the concluding portion of the opening lecture delivered by Professor Roger Smith to the Architectural Classes of the University of London (Session 1890-91) on October 2. (See p. 235, *ante*.)

and by then being introduced to the use of drawing instruments; and he deserves the name of "good" when he can work with the instruments in his hand as freely and as unfettered as if he were simply using chalk, or pencil, or etching-pen. In laying out the course for a student acquiring technical education at a college preparatory to becoming the pupil of a practising architect, to pursue the wisest plan, in many cases, would be to devote whatever time can be spared from other subjects to figure-drawing, and to postpone all geometrical drawing and the study of architectural features,—such, for example, as the orders,—till his pupilage. I hardly need say that for this work there are facilities in the Slade school, forming part of this college, inferior to no art school in London. Where the pupil is already a good draughtsman, or, in some cases, where he has not the facilities in the office where he is articled for pursuing the kind of work, I believe a school of architectural drawing here would be of service, and I do not doubt the feasibility of establishing one as soon as a sufficient field of usefulness seems open for it.

This additional consideration must, however, be borne in mind: that the study of drawing is calculated not merely to make a man a draughtsman, but to promote his becoming an artist. Some small spark, at least, of artist's knowledge, feeling, and skill must be part of the architect's composition, or he will be but a poor sort of an architect, however elaborately trained; and it is to work in the Art School that we must partly look for rousing any germs of artistic enthusiasm there may be, for opening a man's eyes so that he may know how to see the beauties of nature, and how to appreciate the art of good pictures, statues, or buildings. And among auxiliaries for helping to learn the nature of art let me include the lectures given here by our newly-appointed lecturer on applied art, Mr. Stannus. No architectural student will regret attending them, and I doubt if any more interesting and stimulating instruction can be obtained by a student anxious not merely to make himself familiar with ornament as used in architecture, but to understand the reason why good ornament is good, and bad is bad; in short, the principles which underlie all successful applications of art to industry,—among which applications architecture holds the foremost place. In speaking earlier of a liberal education, I spoke of fine-art training as calculated to give that liberal quality to an architect's education which it must not be without. Here I refer to it as an essential. Any other kind of accomplishment is desirable, but something of the artist he must be if he is not to be a failure. Here, then, time and attention may be wisely bestowed, otherwise the scientific and practical training may outweigh or smother the artistic sense, which often is not at first at all vigorous, and in many respects needs careful fostering.

I ought not to omit, and at this point ought to take up the subject of design in architecture, did time permit; but a few sessions ago I devoted a lecture similar to this to an examination of the question, covered by the following subject, "Learning to Design Buildings," and as that was printed in the professional journals of the time, I must refer you to them if you wish to see in detail what I have to say on that subject, and I will ask any who may feel interested by this lecture to be good enough to turn up the reports of that one and read them. Briefly I may point out here, however, that designs can only be made by persons who have in their possession the material out of which they are made, and know how to use it. To put this truism into other words, the first essential in designing buildings is knowledge of buildings,—of their plan, of their structure, of their intention, uses, and qualities. The next is a knowledge of the architectural features which are put together in forming a design,—a knowledge to be only gained by drawing them, and to a considerable extent only by drawing them from actual existing examples. Thirdly, some familiarity with the principles of design or composition to be detected in good buildings; and lastly, repeated and persevering effort. If there is any branch of knowledge and of skill in which it is more true than usual that practice makes perfect, I think it is in the designing of buildings. If you compare the early-executed works of Sir Charles Barry with his latest masterpieces you will see how far he was when he began from meriting the distinction which has often been accorded to him of being the foremost architect in Europe of his time; and his great genius was only brought out by unwearied practice in using the vast store of architectural knowledge, which during his long period of pupilage and of study abroad he had accumulated.

There remains one branch of architectural technology to consider, a branch of which much can be learnt in the lecture-room, though the nature of it is essentially practical. I allude to professional practice. This topic forms the subject of examination at the Institute, and it is one on which it is peculiarly advantageous for a practitioner to be forewarned, quite apart from examinations. A course of lectures on "Professional practice" is given by me in this College. I do not recommend students who are going through such a preliminary technical course as I have suggested may with advantage be taken before entering an office, to include this subject. The course is intended rather for men who have had some practical training and are preparing for the final Institute examination, or desire to qualify as District Surveyors, or, at least, wish to understand what is going on in the practice of the office where they are, or to prepare themselves for entering practice on their own account. The entire routine of the professional conduct of building operations from the architect's point of view, and those points in which law comes most into play, such as the Acts of Parliament regulating buildings, and rights of light and air, form the subjects of these lectures, which also include a notice of dangerous and ruinous structures, and the precautions to take in dealing with them. These lectures, I hope, may enable some of my students to profit by other men's experience, instead of having to win the whole of their experimental knowledge of practice for themselves.

It is now time briefly to recapitulate the course on which we have travelled, preparatory to drawing this lecture to a close. After referring to the now-completed series of Institute Examinations as pointing out to us the subject of technical education for architects, we divided a professional man's education, and looked at its initial, liberal, technical, and practical sides; and, after glancing at the initial and its bearing upon the Preliminary Examination, we considered at some length the nature of a liberal education, and how a man who originally has not enjoyed many advantages, may improve and expand his mind by suitable studies. A notice of practical education led to a few words on the subject of pupilage in the architectural profession, and we were then left to consider technical education in connexion with the tests involved in the Intermediate and Final Examinations at the Institute. The scheme for technical education now under the consideration of the Architectural Association appeared here to claim special notice, and if, as an old member and former officer of the Association, I ventured on some remarks that were critical in their nature, I trust it will be understood that they were not dictated by any desire to find fault,—far less to oppose,—but as a contribution to the discussion of a scheme which must be very thoroughly sifted.

I then considered the course which a different class of candidates for success in these examinations, especially in the intermediate, can follow, and I pointed out the large provision of skilled instruction in the subjects on which the technical studies of an architectural student must chiefly turn, which exists at this College, and of which a student whose friends can send him here for a session before he is articled,—or, let me add, his master after he is articled,—cannot do better than avail himself. This includes, of course, a brief *résumé* of the work which those who go through with me the courses that begin next week will take up, for a fuller statement of which work I must refer you to the printed prospectus; and I beg here to remind you that the first lectures of each course are open to you free, so that those who desire to do so can attend one or two lectures to see if the sort of information given is what they desire. I have, however, very little doubt that most of the students who go through the courses this session will not be in the position of the imaginary student whose course of study I have sketched; they will rather be pupils or assistants in architects' offices desirous of making the most of time. I can only say that any or all of you will be welcome in that character. It has hitherto been almost entirely from architects' pupils that these classes have been recruited, and the hour of meeting has been fixed and is still retained at six, as being likely to suit the majority of such pupils. I have in this paper sketched what I believe would be the most useful programme for the education of an architect; but it is not the programme so much as the quality of the teaching, and, let me add, the quality of the learning, which makes education of any sort a success. You, gentlemen, have arrived at a period when, to a large extent, a man's future is in his own hands more than in those of any other persons in any way concerned. And do not let this evening's engagement lead you to put too high a value on any system of education *per se*. A good system is a good thing, as it affords a good teacher and a good learner the best scope for their respective shares in the great work of education, but that is all. A resolute, intelligent, and persevering student can manage to extract a vast amount of knowledge if only he can get at any person, any class, or any book where the knowledge exists, even if proceeding according to a very imperfect method; and a good teacher is to a very large extent independent of any exact scheme, for he involuntarily steps over the boundaries of a cramped one and straightens the irregularities of an ill-considered one. I do not, however, wish so be understood as apologising for the programme here as either cramped or ill-considered; on the contrary, no pains have been spared to make it comprehensive; and a great deal of consideration has been bestowed upon the question what to include, and in what order and by what methods to take up the different subjects. Of the Professor it is not for me to say anything except to claim that he has had a long experience in his share of the work, and to assure you that he has a very genuine sympathy with you in your share, and a hearty desire to be of as much service to you as possible. What you, gentlemen, may be as students, time only will show; but I can assure you that your predecessors in years gone by have been uniformly such students as it was a pleasure to lecture to, and that among them not a few have shown a diligence, an intelligence, and an artistic feeling worthy of the highest praise; and I not only hope, but expect, to have students of the same calibre in the session which commences to-day.

CITY ARCHITECTURE IN WESTERN AMERICA.

Under the title of "The City House in the West," *Scribner's Magazine* for October publishes a very interesting and admirably written article from the architect's point of view, by Mr. J. W. Root. For the details of the subject and the numerous plans and illustrations we must refer the reader to the magazine, but the following extracts in regard to the general position of architecture in Western America will be of interest to our readers:

"The conditions attending the development of architecture in the West have been, in almost every respect, without precedent. At no time in the history of the world has a community covering such vast and yet homogeneous territory developed with such amazing rapidity, and under conditions of civilisation so far advanced. Few times in history have ever presented so impressive a sight as this resistless wave of progress, its farthermost verge crushing down primeval obstacles in nature and desperate resistance from the inhabitants; its deeper and calmer waters teeming with life and full of promise more significant than has ever yet been known. Between the period of conquest and the period of realisation there is for art in this great development a distinct hiatus. It is a long time full of deadness, except of physical force, then a sudden bursting of art into exuberant flower. Up to a time twenty years ago every energy of the hardy pioneers who were opening the vast district now called 'the West' was expended in the most rudimentary work—that demanded by self-protection and self-support. Even now, in remoter districts, still sounds the Indian's war-whoop, and still exists something of those wild and barbaric conditions so recently conquered farther East.

During the period of this ceaseless struggle architecture, as we understand it, was not thought of; and the most primitive log-hut served for shelter. But as cities began to spring up, the 'balloon-framed' wood house was evolved. This early type of dwelling has made

the growth of the West possible. Frail as its structure seems to be, it has been the very fortress of civilisation, withstanding all assaults of heat and cold, and often baffling the deadly cyclone where massive structures of masonry succumbed. Nothing could be more simple than its skeleton. Unlike the early dwellings of wood erected in the East, no expert carpenter was needed,—not mortise nor tenon nor other mysteries of carpentry interfered with the swiftness of its growth. A keg of nails, some two by four inch studs, a few cedar posts for foundations, and a lot of clapboards, with two strong arms to wield the hammer and saw,—these only were needed, and these were always to be had. For no sooner did the yell of the Indian grow distant upon the verge of the prairie, or over the slope of the hill, even if but for a few days, than its fierce sound was followed by the drowsy buzz of the saw-mill. Even to-day many Western cities, not only like Chicago, whose earliest growth dates back fifty years, but like Duluth, Minneapolis, Omaha, and others of later growth, are more than half made up of these frame houses. In Chicago the great West Side contains thousands of them. Their life, however, is now nearly finished; for in nearly every Western city of more than one hundred thousand inhabitants the law is passed that within city limits no wood house may be built; so that the next five years will see their total disappearance in favour of more or less substantial structures of masonry.

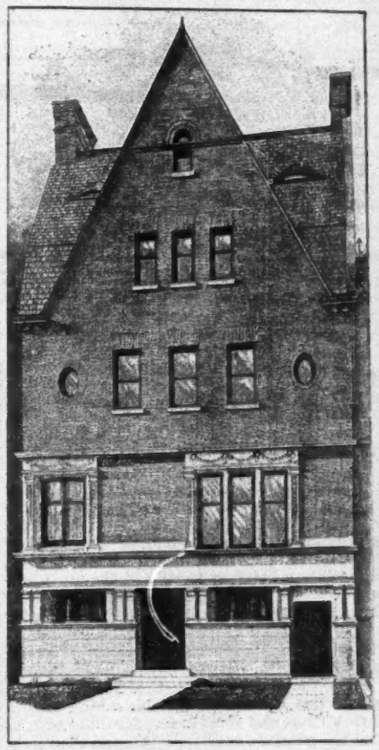
Thus these hardy pioneers of architecture, in their very disappearance, do architecture some service, for because of them every old Western city must be almost entirely rebuilt, and this under modern and enlightened auspices, as if it had been devasted by a great fire or cyclone. This is clearly an advantage to architecture and to civilisation; that is, it may be a great advantage to architecture and to civilisation. It certainly presents possibilities to the architects of the West such as have never been given to any other group of men. . . . .

Chicago possessed a few interesting souvenirs of its early history; but these, alas! went with the great fire of 1871; and scarcely a remnant remains; and of these few not one has been spared by the irreverent hand of progress.

From the early and meagre architectural development of this and other Western cities, the present state is vastly removed. Indeed, modern Western dwellings seem to have scarcely a visible trace of relationship to these earlier types. First, let it be noted that there is in Western cities a notable absence, compared with cities in the East, of houses built in blocks. The reason for this is obvious. Eastern cities, being older, were begun, and their traditions established at a time when their citizens were more interdependent, and facilities for transportation were less complete than now. For this reason they are not only more compactly built, but ground has become dearer than in the West. The reverse is true of Western cities, and the result is that residences much more frequently occupy considerable space, being entirely detached from other houses and surrounded by their own trees and lawns. It will frequently happen that a citizen imbued with characteristic and full confidence in the future growth of his city will purchase a large tract slightly removed from the business centre, upon which he will build his home, knowing that but a short time will elapse before it will be embraced by the city itself. When this occurs, he subdivides and sells what he does not need, reserving an acre or two for his own purposes. The frequency of this kind of thing gives Western dwellings a general suburban aspect, removing them from the class of city houses to which we may have become accustomed. This suburban effect is also enhanced by the extraordinary increase in the variety of building materials, which, coupled with the characteristic Western love of novelty, often leads to the erection of houses as different in material, colour, and treatment as is possible to conceive, different dwellings in the same street being as independent of each other,—often as apparently hostile, as if separated by wide stretches of open country.

Nevertheless, many streets thus built up present a superb air of space, comfort, and even luxury. In driving through these streets the eye is at no time wearied with the monotony which is so tiresome in Fifth Avenue or other similar streets in Eastern cities, but is everywhere delighted with constant change, constant appeal to new sentiment, and that delightful sense of the picturesque which, to the stranger, is so inspiriting. Notable among such streets are Euclid-avenue in Cleveland, where the splendid residences which line it are often set back as much as two or three hundred feet from the street; Michigan Boulevard and the Lake Shore drive in Chicago, superbly paved streets with great variety of interesting outlook; Prospect and Grand Avenues in Milwaukee, the first overlooking the lake from a bluff 100 ft. high, the second a magnificently-wooded avenue 200 ft. wide; and several avenues in St. Paul, Minneapolis, and other cities. Occasionally these streets are laid out park-wise, still further accenting this suburban aspect. . . . . .

San Francisco has had a very unusual architectural experience; it has been more isolated from the rest of the country than almost any other of our cities; its development, therefore, has been more peculiarly its own, and has been less modified by contemporaneous work in Eastern cities. It is only of very late years that work being done in the East has strongly modified the feeling of San Francisco architects. The fear of earthquakes has caused nearly every dwelling-house to be constructed



Modern House, Prairie Avenue, Chicago.
(From *Scribner's Magazine.*)

of wood. In spite of this fact, little seems to have been done, as might have been expected, toward developing an architecture of wood. All sorts of architectural styles, originating in stone, have been adopted bodily in wood, with scarcely a change in the original stone expression except such as is absolutely necessary for the jointing of a different material. California and other parts of the Pacific coast are blessed, in so far as their wood houses are concerned, in their beautiful red-wood. This is a lovely colour for interior, as well as exterior work. Its effect, when used outside in shingles and otherwise, and treated with spar varnish, is singularly fine, presenting to the eye a fine leathery texture. This wood is not difficult to work, and when used with intelligence and discretion should be made to contribute, in a great degree, to the development of new forms of design in wood.

The houses mentioned above, like all typical Western dwellings, are better finished within than their exterior would seem to indicate. The reverse of this is seldom true, and this is a good deal to say for the certain honesty in Western cities, where the occupant of the house is less interested in making a specious display to his neighbours than in acquiring a solid and enduring comfort for himself. Native hardwoods are freely used, especially white and red oak, both quartered and plain. These woods have been especially popular; their beautiful grain and open texture lend themselves to so many effects of colour that they have taken the place of other wood, the colour required being imparted to them by filling and staining; indeed, their use has become so general that the supply threatens to be exhausted, and their market value has increased during the last few years nearly double. From California come several beautiful,—if rather showy,—woods, in yellows and reds. The manilla-wood from the coast has much of the beauty of mahogany, with its deep red tones and waving grain. Curiously enough, when we have practically abandoned in the West the use of American black walnut, which at one time was employed far more than any other native hard wood, and are now beginning to use so freely the English oak, the very 'swell thing' in England seems to be to abandon the use of their beautiful oak and substitute instead our American black walnut.

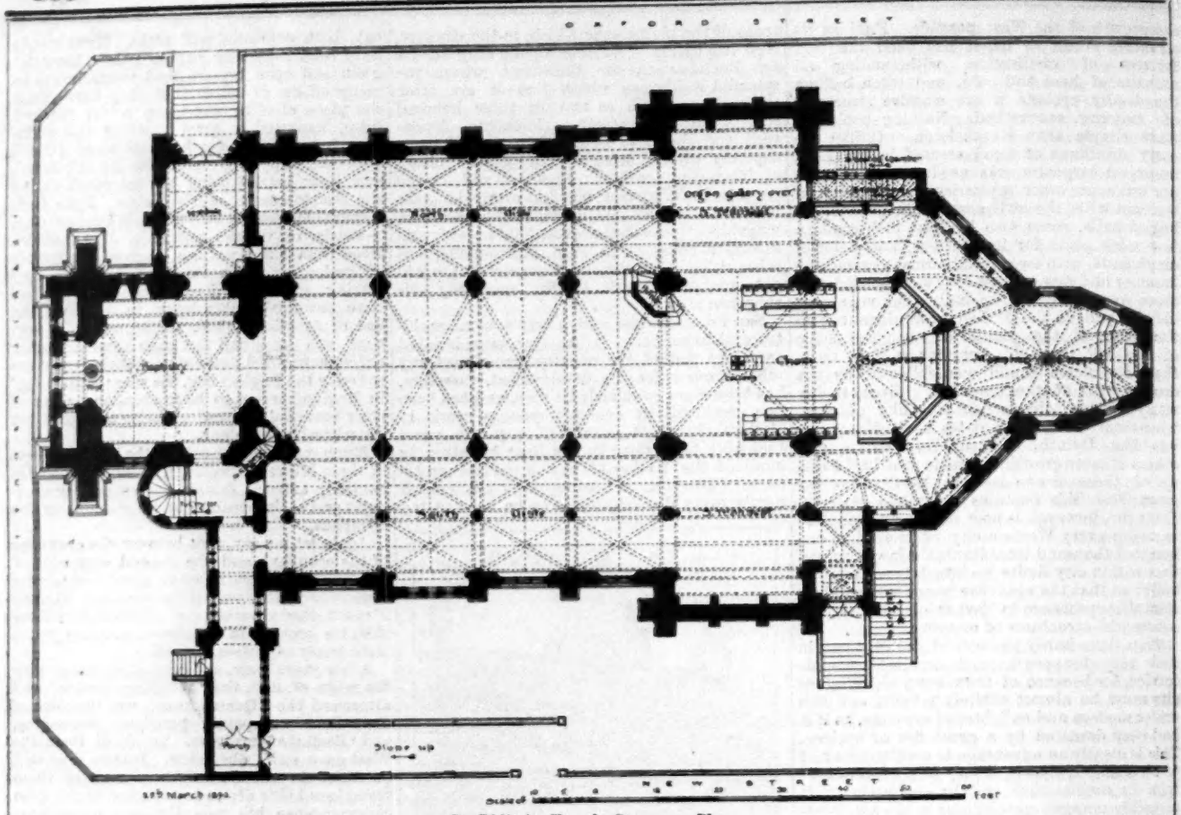
Much more may be said of the interior aspect of these Western dwellings, which is as varied as their exterior designs, or as the temperament and social position and disposition of the occupant.

Again let me say, that between the character of the occupant and the general expression of the dwelling there is much greater similarity than in any other part of the country. The one is much less governed by artificial conditions than his brother in the East, and very much more freely expresses himself.

A few years back, and contemporaneous with the reign of, first, the 'Victorian Gothic' and afterward the 'Queen Anne,' was the reign of marvellous wall-paper, portières, *bric-à-brac*, and 'Eastlake' furniture. To all of these the West gave swift obedience. Houses may still be found in abundance where each of these sovereigns holds divided sway; but in the main common-sense has won the day, or at least other and less artificial fads now rule. First the embroidered, carved, painted, cast and wrought iron crane, who so long stood on one leg amid surrounding cat-tails, has died; the death was prolonged and painful, but seems finally to have occurred. After this, the famous, honestly-constructed, glued-on, mortice-and-tenon furniture fell to pieces and went to the cellar; then, as intelligence increased, the people began to purchase pictures of interest and beauty, and ceased to paste pictures of no interest and beauty on their walls and ceilings. After this came a yearning for more sunlight and fresh air, and heavy stuffs were largely removed from doorways and windows, and lighter materials substituted. Last of all, the indiscriminate vase and plaque, the ubiquitous display of cups and saucers, have given way to temperateness in this as in other things. Even 'stained' glass, which in the West has for many years run a most shameless career, has grown less wild and uncivilised, exchanging its barbaric hues for gentler whites and opals.

Take it altogether, the outlook for Western city houses seems most promising. Western people themselves are becoming, and will still more become, almost ideal clients. It is true that, as in the East, Western city dwellings have not escaped the deadly touch of the 'know-it-all' client, nor of the man who is 'building the house to suit himself,' nor of him who 'is going to live inside the house, not outside,' and who is, therefore, loftily indifferent to the street aspect of his house; but each, even the last person, is becoming infrequent. In the past, and to some degree at present, Western cities have been and are influenced by men whose lives have been absorbed by things too material to leave them much leisure for art; but even in the case of such men there is a marked indisposition to dictate in directions where their knowledge is incomplete. They have a large openness and unbiassed attitude of mind, and a genuine and earnest desire to 'get the best.' In the West is less often found than in the East the 'æsthetic crank,' and it is also true that life in the West is less conventional, freer, less restrained by artificial restrictions than in older communities, and the true nature of people and things is, perhaps, more frankly expressed.

All of these conditions are helps to the architect, for while they free him from such artificialities as might tend to hamper him, or to make his work more formal, they give wholesome impetus to honest and earnest endeavour.



St. Philip's Church, Stepney: Plan.

Circumstances are also such that the architect may act with great catholicity. Architectural tradition in the West there is none. Even from such practices as may exist in the East, the West will often hesitate to borrow; and among the various Western cities, marked tendencies towards divergence, not only from the East, but among themselves, may be noted. Thus contemporaneous work in St. Paul and Minneapolis will differ in marked degree from similar work in Omaha or Denver; and the dwelling-houses now erected in Chicago have marked peculiarities not to be found in other cities. These variations are due to great differences of climate and customs, as well as to differences of temperament among both clients and architects, for the enormous size of 'the West' must be borne in mind when considering this great architectural development. Among these various rival cities dominant 'fads' in architecture are likely to become less common, and problems will be more generally determined by the nature of the case."

Illustrations.

"THE DANAIDES": DESIGN FOR MURAL DECORATION.

THIS design, by Miss May Bowley, occupied a central place in the Architectural Room at the last Royal Academy exhibition. The drawing is an illustration of the ancient legend of the Danaides, the princesses who were condemned for ever to draw water in vessels with holes in the bottom. It was intended by the artist, however, to express a further meaning, as symbolising "Labour," but that kind of labour which is hopeless and ends in no useful result.

ST. PHILIP'S CHURCH, STEPNEY.

THIS church, at the back of the London Hospital, Whitechapel, is now being built from the designs of Mr. Arthur Cawston.

The western half, including the western transept piers, has been finished about a year, and is used for services, as shown by our illustrations. The eastern portion is now being built, and the contract time for completion is August, 1891.

Mr. T. Higgs, who superintended the erection of the western portion, is again the clerk of works, and Messrs. A. Bush & Sons are the builders.

Our interior views are printed from photographs taken by Mr. Charles Latham.

The instructions given to the architect when he was first called upon to design this building, were that it was not to be a strictly utilitarian building, crowded with seats everywhere, like a meeting-house, a concert-hall, or even an ordinary modern parish church, but it was to be, if possible, a building worthy of the great purpose to which it is put; an interesting place for the parishioners to rest and hide themselves for a time from their neighbours, and a permanent protest in this practical age against the everlasting question, "Will it pay?"

It is for these reasons that in this small parish this church has double aisles, but a narrow nave, and short choir; for these reasons that the windows are kept small, and their light dimmed; that the north-west door is not in ordinary use, but that the entrance is by a cloister, which, when completed, will probably run the whole length of the south side.

It is to give interest to the building that the Morning Chapel is hidden away as much as possible in the east end, so that it cannot be immediately seen by any one who enters the church. In fact, by whichever door the church is entered, it was intended that there should always be one thing of interest which required a walk right into the building before it could be seen.

The building, as originally designed, had one bay more length in the choir; but when the east end was being commenced the size had to be curtailed, and a visit to St. Denis, near Paris, where the chancel and many handsome steps up to it project boldly out beyond the transept piers, suggested this arrangement, which is also found in some few of our English Cathedrals.

No steps are shown on the plan between the choir and the nave, but this, to some minds, is an advantage.

A glance at the plan of Wells Cathedral will dispel the fear that the shape of the Morning Chapel is original. The centre pier here is to be polished Hopton Wood stone, to support the many irregular ribs of vaulting that will spring from it, and the walls of the chapel will be faced with Sussex stone from Mr. Whitehead's quarry, near Three Bridges, a stone which has often been used with success by the architect. The surface will be rock-faced, and, of course, the stones will be kept small in size.

The remainder of the church internally is faced with common stock bricks, freely relieved with Bath stone, as in Mr. Pearson's church in Red Lion-square. Externally the materials are red brick and Ancaster stone; but, in view of the surroundings and for other reasons, it was not thought desirable to ornament the exterior.

Should any of our readers visit the neighbourhood we would call their attention particularly to the wonderful transformation recently made just at the east end of the building. What was once a dust-heap is now a miniature garden, with its artificial lake, rivulet, and bridges, its menageries and its grottoes. It is surrounded by a high paling to ensure quiet, and is reserved for the old people of the parish.

A. C.

SKETCHES AT THE ARTS AND CRAFTS EXHIBITION.

The sketches given in this plate, representing various objects in the Arts and Crafts Exhibition, are referred to and commented on in the article on the exhibition in another column.

THE CASE OR SHRINE OF ST. PATRICK'S BELL.

THE ancient Celtic Church had the peculiarity, not shared by other Churches, of possessing various small bells which appear to have belonged to the earliest of her ecclesiastics. Much respect was afterwards shown to these objects, as is evidenced by the care with which they were preserved, in many cases shrines of great beauty and value being provided for their reception, while special keepers, generation after generation, had charge of the sacred objects.

The greatest number of these bells are found in Ireland, but many are preserved in Scotland, a few in Wales, but only two are known to exist in England. They are always of small size, being clearly hand or portable bells, resembling in their general form those of ancient Roman date, examples of which are not uncommon, and from which they were most probably derived.

What may reasonably be considered as the earliest examples are formed of sheets of thin iron, the edges of which are lapped and riveted together after having been bent to the intended

MAY BOWLEY.

Royal Academy

"THE DANAIDES": DESIGN FOR MURAL DECO

Royal Academy Exhibition, 1890.

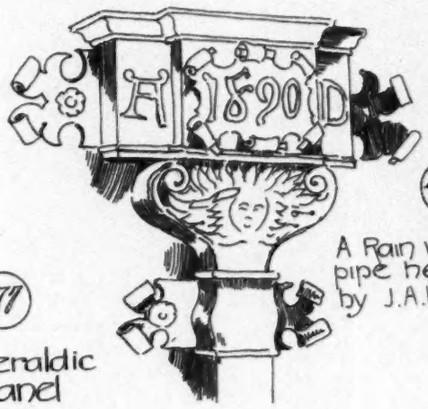
"TEX-PHOTO," SPRAGUE & Co., 82, MARTINS LANE, CANNON ST., LONDON, E.C.

DECORATION.—By Miss May Bowley.

Portion of a Frieze by Reginald T. Blomfield. (478)

(511) The Ellison Challenge Cup.

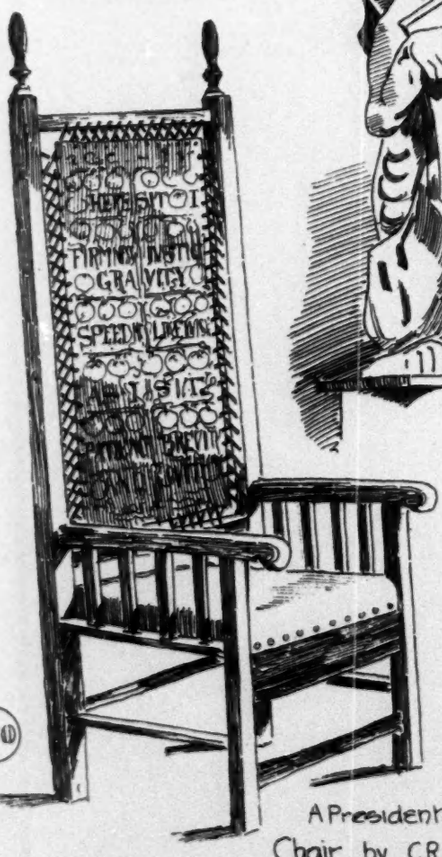
(477) Heraldic Panel (for Porch, 'Rhinefield,' Hants) by W. Aumonier.



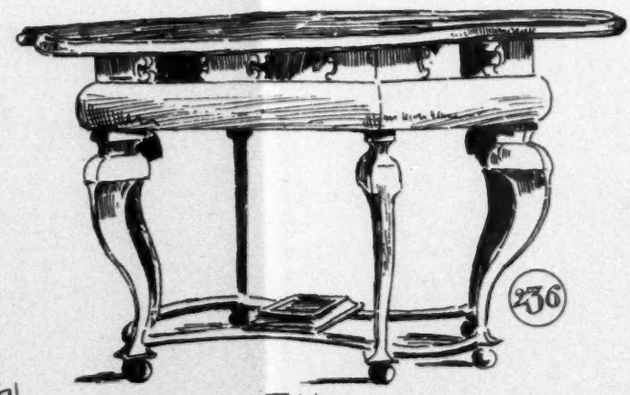
(4[illegible]) A Rain W[illegible] pipe he[illegible] by J.A.H[illegible]

(436) A Lion by J.D. Sedding

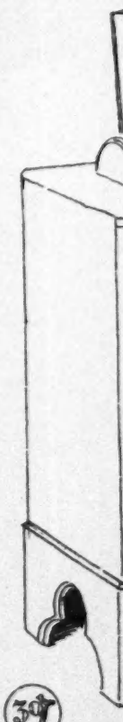
A Copper Dish by J. Pearson (407)



(190) A Presidential Chair by C.R. Ashbee.



(236) Table by W.R. Lethaby.



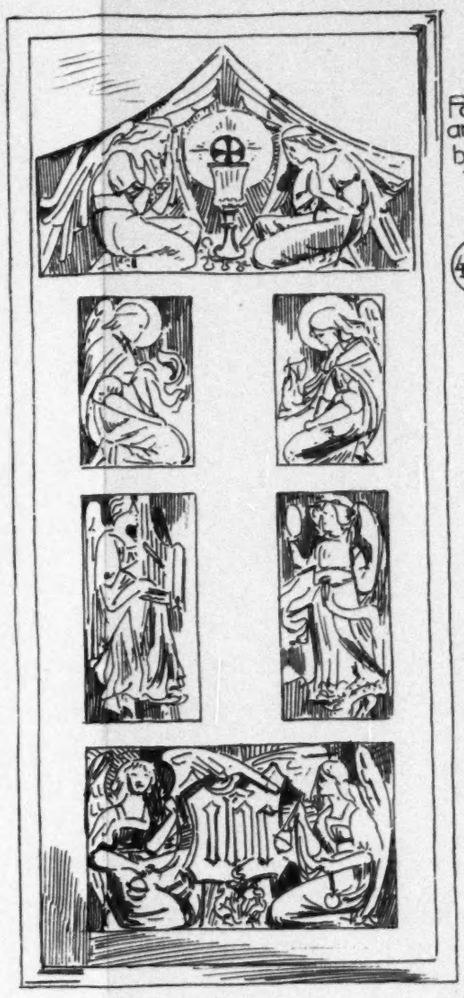
(39[illegible])

492

Rain Water
e head
J.A. Hvnt.

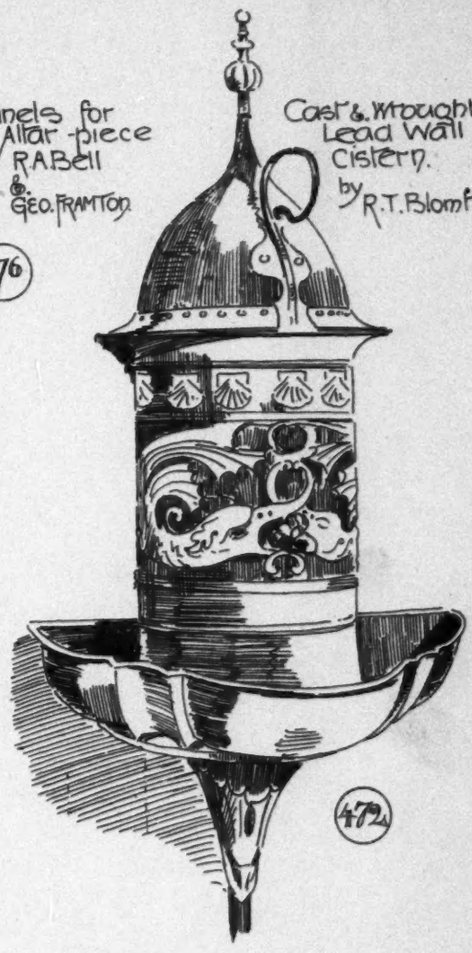
ish

eon



Panels for an Altar-piece by R.A. Bell & Geo. Frampton.

476

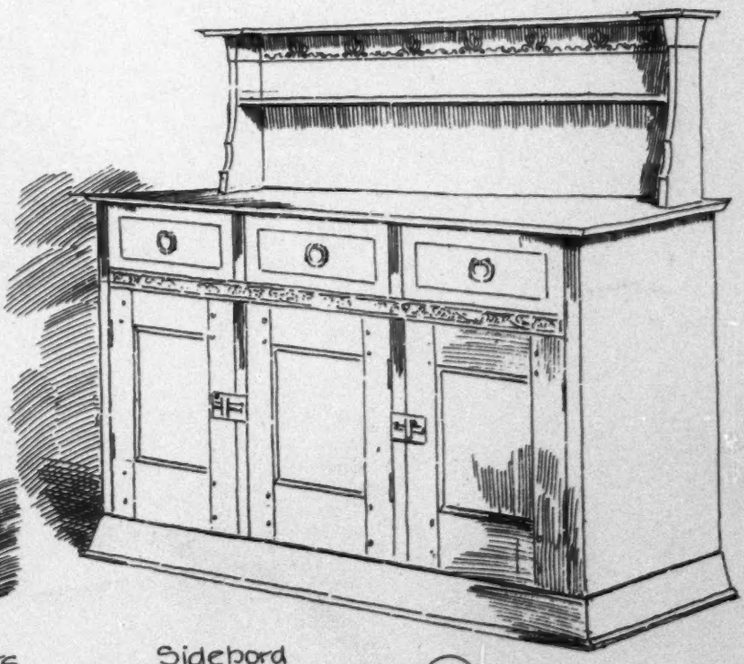


Cast & Wrought Lead Wall Cistern. by R.T. Blomfield.

472

Sketches from the Arts and Crafts Exhibition.

Chest of Drawers by Ford Madox Brown.

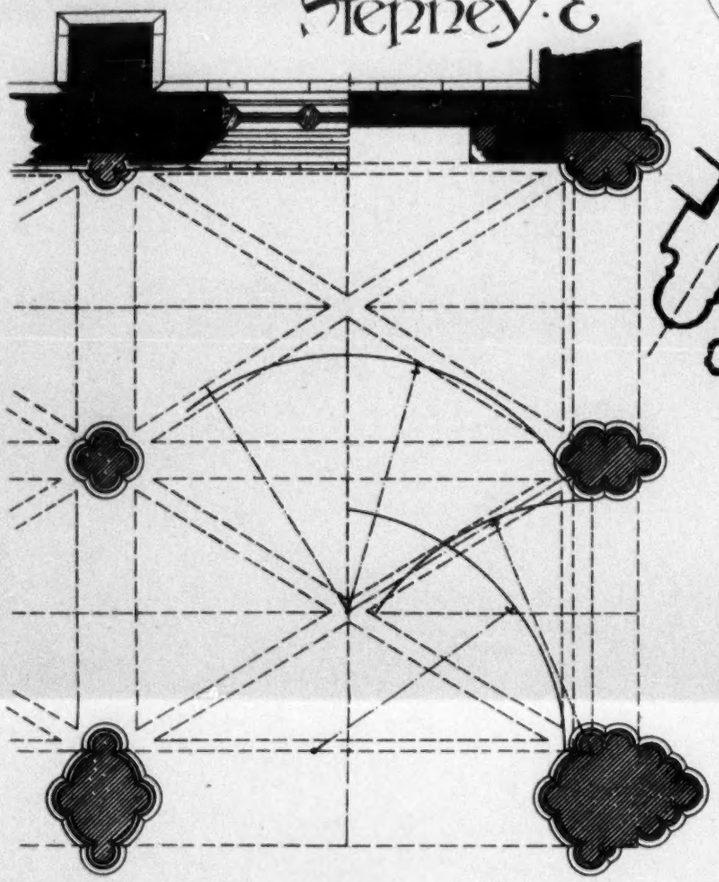


Sideboard by C. Spooner. 238

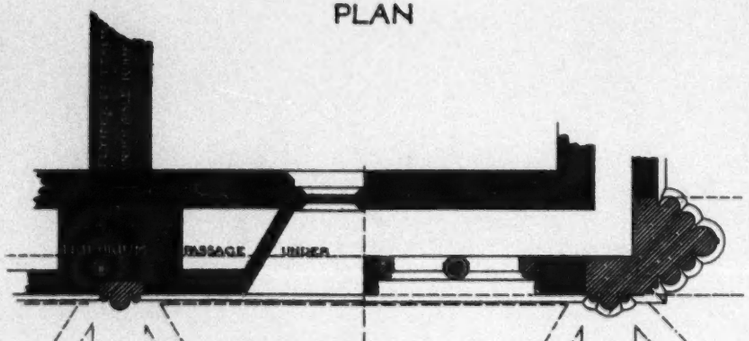
PHOTO-LITHO. SPRAGUE & Co. 22, MARTINS LANE, CANNON ST. LONDON E.C.

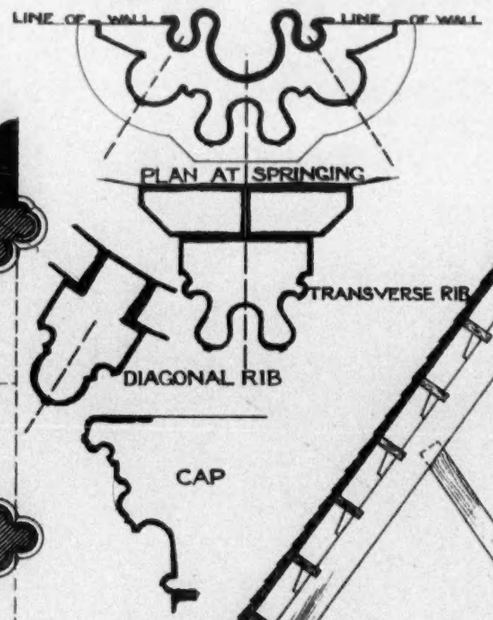
St Philip's Church Stepney. E

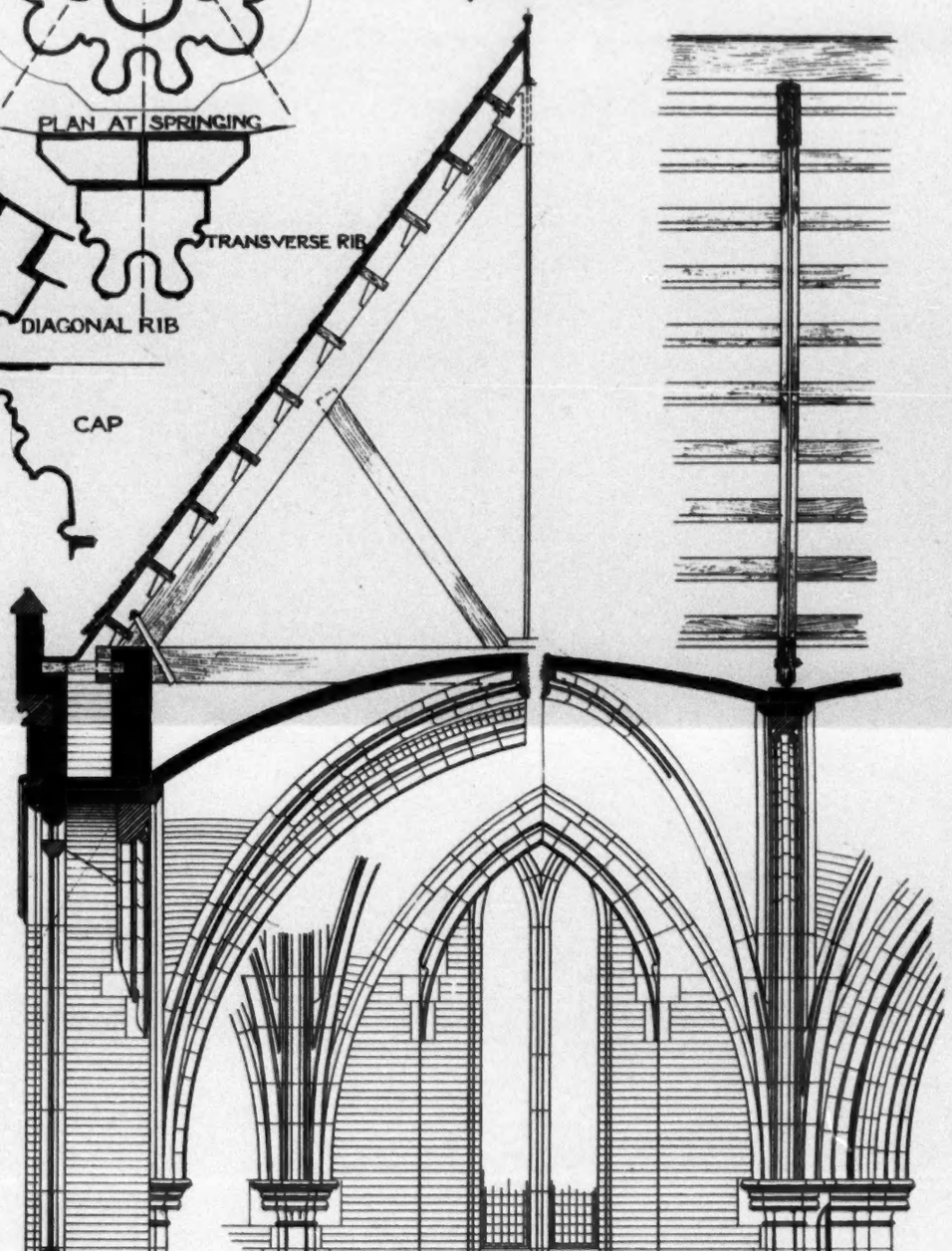
Mr. A. Caruston. F.R.I.B.A. Architect.



PLAN







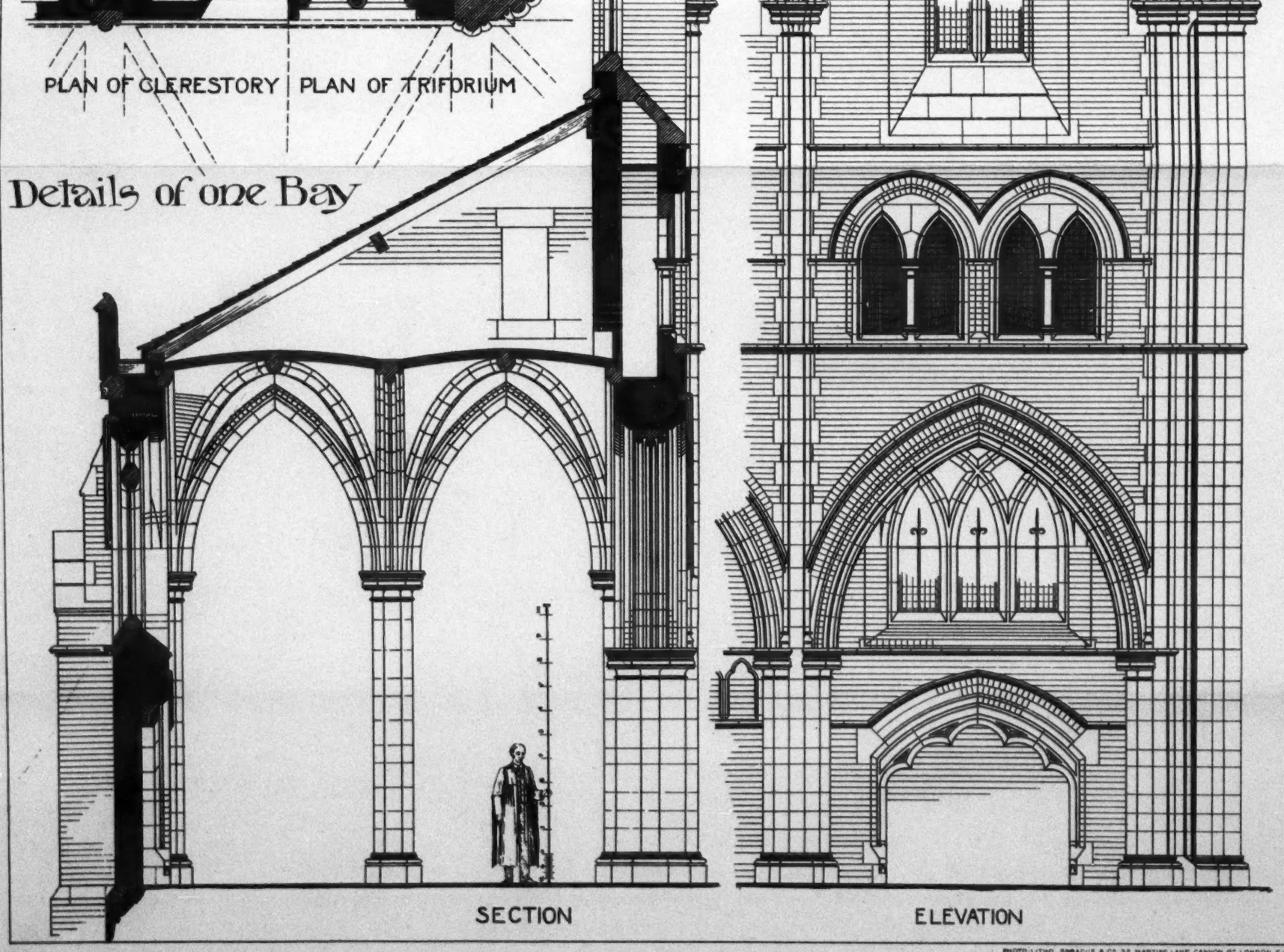


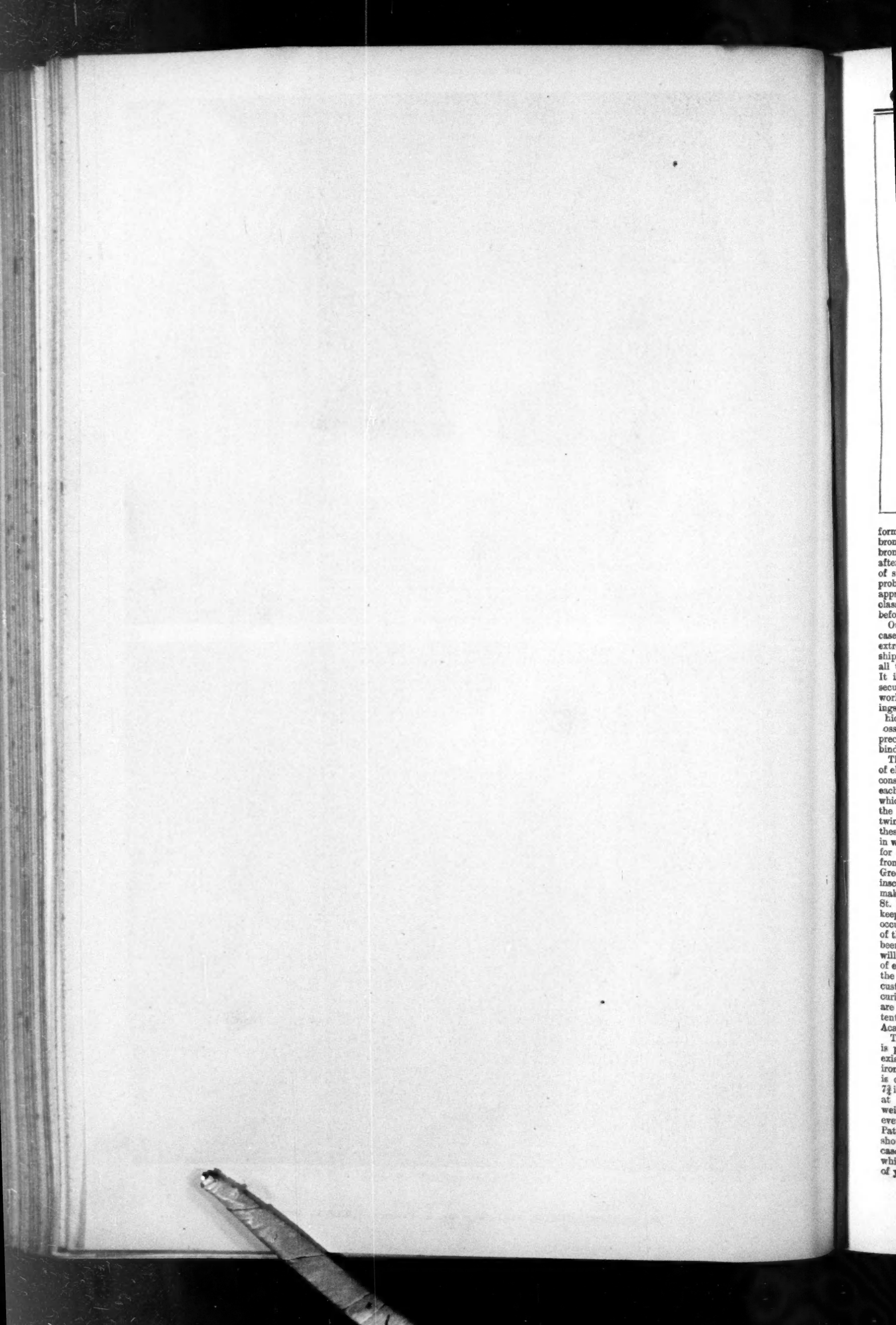
PHOTO-LITHO SPRAGUE & Co 32 MARTINS LANE CANNON ST LONDON E.C

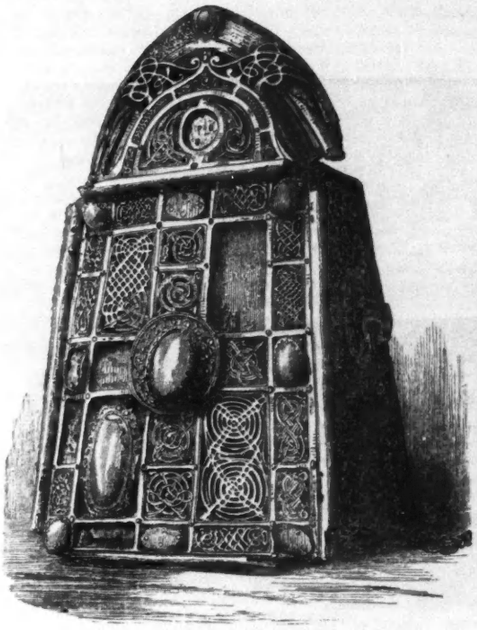
LOOKING INTO NAVE FROM BAPTISTERY.

"[illegible] PHOTO," SPRAGUE & CO., 62, MARTINS LANE, CANNON ST., LONDON, E.C.

PART OF BAPTISTERY AND VESTIBULE.

ST. PHILIPS CHURCH, STEPNEY.—Mr. A. Cawston, F.R.I.B.A., Architect.





Shrine of St. Patrick's Bell.

Detail of Head of Shrine.

form. The joints were then filled in with bronze, and the bell itself dipped into liquid bronze, and thus coated with that material, after the manner practised in the manufacture of sheep-bells in Wiltshire. Another variety, probably of later date, is of cast bronze. An approximately dated example of this latter class,—the bell of Armagh,—was fabricated before A.D. 904.

Our illustration represents the celebrated case of the bell of St. Patrick, which, for the extreme beauty and minuteness of its workmanship, is the finest and most worthy of study of all the bell-shrines remaining in the kingdom. It is formed of bronze, the corners being secured by copper flutings. On this groundwork are riveted the gold and silver panelings which contain the mass of decoration, of hich the more salient features only are ossible to be shown by the engravings. The precious stones and glass remind us of the bindings of some of the earliest MSS.

The upper portion, shown more in detail, is of elaborate work in silver and gold. The sides consist of similar work, of different design on each side, of great elaboration and beauty, which has to be seen to be fully appreciated, the minute and intricate nature of the entwined spirals being difficult to follow. Some of these have heads, the eyes of which are filled in with minute specks of green glass. Rings for suspension exist on both sides springing from crosses; the back consists of a diaper of Greek crosses; while around the margin is an inscription in Irish, asking for a prayer for the maker of the bell, for Donald, the successor of St. Patrick, for whom it was made, for the keeper of the bell and others. From the occurrence of some of the names in the annals of the Four Masters, the date of the shrine has been assigned to between 1091 and 1105, but it will be noticed that many of the patterns are of early form. The history of the descent of the bell and its case from one generation of custodians to another is remarkable and curious, but it need not be repeated here. Both are now among the most precious of the contents of the Museum of the Royal Irish Academy, Dublin.

The bell contained within this beautiful case is perhaps the most ancient of its class now existing in Ireland. It is formed of plates of iron, dipped in bronze as already described, and is of small dimensions, the height being only 7¾ in., including its flat bow handle. The width at the mouth is 4¼ by 3¼ in., and the total weight is 3 lb. 11 oz. There is nothing whatever on the bell itself to connect it with St. Patrick; but the reverence which has been shown to it by the preparation of the costly case which enshrines it, the careful keeping which it has received through so many hundreds of years, and the name given to it by tradition during all this period, are important elements in support of its title to be considered, indeed, as a personal relic of Ireland's Apostle.

A charming monograph of the bell and its case, with full-sized plates printed in colours, has been published by Marcus Ward & Co., with a description by Dr. Reeves.

THE COMPETITION FOR THE WHITEFIELD MEMORIAL CHAPEL AND TOPLADY HALL, TOTTENHAM COURT-ROAD.

The old building, which was once a landmark in the Tottenham Court-road, has been lately removed and the site cleared for the erection of a new building. The Committee decided upon a limited competition, in which the assessor, Prof. T. Roger Smith, has recently published his award, the drawings being exhibited in the temporary school-room in the Tottenham Court-road.

Ten firms of architects were invited to compete, and the instructions were supplied together with a plan. The plan, however, has given rise to a good deal of comment and a letter in our last issue from a "Competitor."

The site is rectangular in shape, with a rectangular addition at one corner. The breadth, however, in Tottenham Court-road is wrongly figured to the extent of 6 ft.; 102 ft. is figured, whilst the existing dimension is 108 ft.

We cannot too severely condemn the carelessness of the Committee in furnishing a plan which is misleading in such an important point; we also sympathise with the competitors who, having followed these faulty instructions, now find themselves at a disadvantage.

On the other hand, we cannot refrain from pointing out to all the competitors that this error is apparent on a cursory examination of the plan, and without measurement of the site itself, for by comparing the dimension in Whitefield-street, 133 ft., less the break, figured 25 ft., the result is 108 ft.; whereas 102 ft. is figured, and all the angles are drawn as right-angles. How, then, is it that in plotting the site, every competitor did not immediately ask for the Committee's explanation? We are surprised that only two competitors took advantage of the extra 6 ft.

The requirements of the instructions included the provision of a chapel to seat 1,500, a school-room beneath it to accommodate 1,000 scholars, and other rooms. These, with a caretaker's residence, were to be placed at the back of the site, abutting on Whitefield-street, whilst the front portion, facing Tottenham Court-road, was to be provided with offices for letting, a church-parlour, ladies' cloak-room, secretary's office, and class-rooms. The first-floor of the front portion was to contain a hall with galleries to accommodate 1,500. For all the accommodation asked for the cost was not to exceed 15,000*l.*, which will probably prove to be an altogether inadequate sum.

The plans to which the first place has been awarded were prepared by Mr. F. Boreham, of Finsbury-pavement, under the device of a "winged heart," and he took advantage of the additional 6 ft. already mentioned.

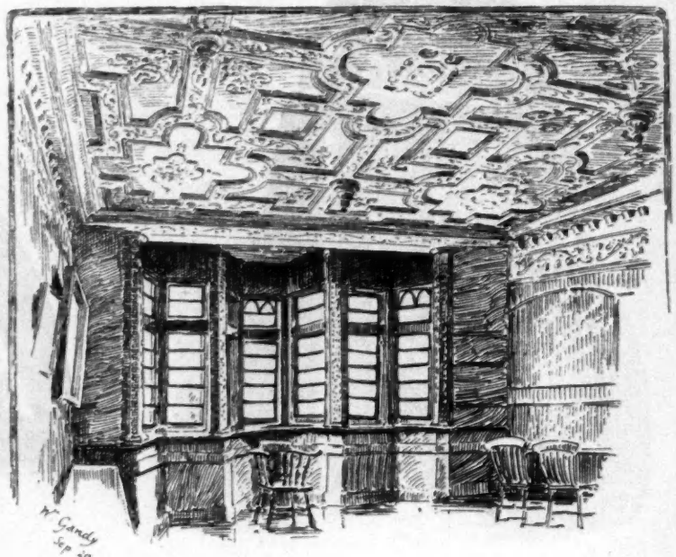
A spacious entrance in the centre of the Tottenham Court-road front, which is flanked on either side by three offices, leads into a hall which has two class-rooms on the south and a church parlour on the right, also secretary's office and ladies' cloak-room. Areas are provided between the two blocks, and on each side of the passage, which leads direct into the chapel, are placed staircases leading to the Toplady Hall. The chapel lies north and south, with the pulpit, organ, and choir at the north end. The entrances at the south, which appear to be very narrow, are flanked by staircases leading to the gallery above, but no means appears to have been provided at this end for getting from the ground-floor to the galleries without going outside the building. The pastor's and other vestries are placed in a convenient position on the ground-floor of the caretaker's house, but lavatory accommodation is conspicuous by its absence. The hall on the first floor is spacious and well lighted.

The plan of these buildings is decidedly the most creditable part of the design. The elevations are not pleasing, designed as they are in that singular style, too often met with in dissenting places of worship, which abounds in semicircles and circles. The building is not one which will cover the art of architecture with glory, and we doubt whether it will give continual joy to any Committee, though art, worthy of the name, be to it a closed book.

It is with relief and satisfaction that the attention is directed to the design which has had the misfortune to be placed second in this competition, and which has been carefully prepared by Mr. J. M. Brydon, under the motto "Lux Mundi." The plan shows a central entrance from Tottenham Court-road, with two offices in each side. The corners of the front are occupied by circular staircases leading to Toplady Hall. The hall is continued through to the chapel and has staircases on each side, which serve both the hall and gallery of chapel.

It is the interior of the chapel that is particularly charming in its treatment. Almost square in plan, the centre is carried up on columns at the angles of a hexagon to form a dome, which is treated with much grace and refinement. The pulpit has been placed on one side of the hexagon, the aisles radiate from this point, and the seating is arranged amphitheatrically. The first floor is occupied in front by the hall, with exit stairs at each corner of

"Sir Paul Pindar's"
Bishopsgate-Street-Without



The First-Floor Room
Sir Paul Pindar's House

the front wall already mentioned. Two doors open on to the landing of a spacious staircase between the two blocks.

The elevations are very refined in the treatment of the English Seventeenth Century style accepted. It is presumed that terra-cotta would have been used in conjunction with a quiet tone of red brick. The building, had it been erected from this design, would have graced the important position of the site.

The names of the owners of the remaining drawings exhibited not having transpired, we are obliged to refer to them by motto. They are—Saxis, Arcanus, Forward, Hearing and Seeing, Lux, Red Cross, Spero, Wisdom Strength and Beauty.

The design submitted by "Saxis" is an interesting study, and certainly ranks high amongst any of those sent in.

The question of cost is, however, unfortunately always to the fore, and though the author proposes to omit the tower, the design would be too costly for the funds available. We certainly think the perspective most pleasing, and the position allotted to the tower a good one.

We do not feel disposed to take notice of any of the remaining designs, some are better than others, and some are very poor.

It is, perhaps, not to be expected in this prosaic age that an effort would be made, or extra expense incurred, by a Committee to erect a building worthy of an important position. It should be remembered, however, that the site is an important one, occupying a large frontage in a wide thoroughfare, and with large open spaces on each side, which greatly enhance its value, and it is to be regretted that this opportunity of erecting a building which would be a bright feature in one of the dreariest streets in the metropolis should be thrown away.

The Committee is endeavouring to obtain too much accommodation for its money, and we sympathise with the assessor in being driven to place economical mediocrity in front of artistic merit.

Plane Trees in London Thoroughfares.—The Metropolitan Public Gardens Association has offered 100*l.* each to twenty Metropolitan Vestries and District Boards, to be expended in planting plane trees in suitable public thoroughfares in each district, on condition that the local authorities agree to maintain the trees when planted, replacing such as may die. The Association is willing to do the planting itself should any Vestry so prefer. The chief requisites for success are thoroughfares of sufficient width (say not less than 40 ft.), plenty of good soil to each tree, and the avoidance of gas mains as far as possible.

THE "SIR PAUL PINDAR" TAVERN, BISHOPSGATE-STREET.

As we mentioned in a "Note" in our issue of the 13th ult., the picturesque old house in Bishopsgate-street-without, known as the "Sir Paul Pindar" tavern, has been doomed to destruction by the extension eastward of the Liverpool-street terminus of the Great Eastern Railway,—a work, by the way, which necessitates the pulling-down of nearly the whole of the western side of Bishopsgate-street-without. The tavern is stated to be the remnant of the house of Sir Paul Pindar, a contemporary of Sir Thomas Gresham. One of the two sketches by Mr. W. Gandy, which we append, faithfully shows the appearance of the front of the house as it has been of late years; the second sketch gives a view of the interior of the first-floor room. The old house-front, with its greatly-projecting bow-windows, was one of the most picturesque bits of old London.

THE LONDON COUNTY COUNCIL.

The usual weekly meeting of the London County Council was held on Tuesday at Spring-gardens, Sir John Lubbock in the chair.

Finance and Technical Education.—Lord Lingen, Chairman of the Finance Committee, presented a revised estimate of the contributions required to be levied for the year ending March 31, 1891, explaining at considerable length the reason for the revised estimates. It appeared that a revision of the estimates, approved by the Council in April last, had become necessary as certain charges in respect of pauper lunatics, industrial schools, coroners, &c., which it was estimated would fall upon the General County Account had, by arrangement with the Guardians of the City of London Union and the Corporation of the City of London, been transferred to the Special County Account. This alteration reduced the amount required from parishes within the City. There had been an increase of the Exchequer Contribution through the legislation of last session, by which a proportion of the new taxes on beer and spirits become payable to the County. The whole sum expected to be thus received within the financial year 1890-91 was 140,000*l.* As a set off against this increased receipt there was the sum of 74,532*l.*, portion of Probate and Licence Duties estimated for in April, but not now expected to be received till after the close of the financial year; 10,250*l.* estimated decrease of such duties and increased charge thereon; and 10,847*l.* increased working balances carried forward to next year. The remainder was accounted for by differences of estimated receipts and expenditure and reduction in the amount to be levied by rate in the City parishes. Of the total Exchequer contribution for 1890-91 there would be receivable after the close of the year the sum of 136,124*l.* The result of the revision of the estimates was that as regards the parishes outside the City, the contribution required for the second six months would be at the same rate in the pound as for the first six months of the financial year, viz., 6·625d., and as regards the parishes within the City, the contribution would be equivalent to a rate of 4·875d. in the pound, as compared with 6·25d. for the first six months.

The Committee recommended that the amount required to be raised in the second six months should be for the General County account 641,569*l.*, and for the Special County account 202,073*l.*, and "that the Council do appoint Tuesday, October 14, to pass an order for the making of a County rate of 4¾d. in the pound for General County purposes, and 1¼d. in the pound for Special County purposes."

The Committee referred to the Act which enables the Council to contribute the whole or part of the grant arising from the new taxes on beer and spirits for the purposes of technical education, within the meaning of the Technical Instruction Act, 1889. The amount expected to be realised within the present financial year was 140,000*l.* This sum had been included in the receipts on which the estimated rate for the second half of the current year was based. But the ultimate application of any such receipts, if renewed in the present or any equivalent form, required careful inquiry and consideration, and the Committee recommended—

"That a Special Committee be appointed to consider the subject, with express reference to the question whether any, and, if any, what proportion of such further amount as may be received pursuant to the said Act, should be applied to technical education."

With reference to the second recommendation of the Committee, which was taken first, Lord Lingen referred to an amendment which was to be moved by Mr. Spicer in favour of devoting the money, or a portion of it, to the promotion of technical education. He (Lord Lingen) was against applying any portion of those funds to a suspense account. Mr. Spicer had selected one of the most urgent subjects with which they could have to deal; but there were other matters which loomed before them in the near future. There was the water question; then again, they had not laid the ghost of the Thames Tunnel; there would be further expenses, at no very distant date, at Barking

outfall, where the sewage was creating a bar and poisoning the water; there was the question of the dwellings of the working classes, and also that of open spaces. The function of the County Council was to look to the health and convenience of the people of London rather than to that of education, to deal with which there was the London School Board.

Colonel Hughes remarked that if the 140,000*l.* had not come to their aid, the rates would have gone up one penny in the pound, and he objected to the money, which it was the obvious intention of Parliament should be devoted to some special object, being applied to the reduction of the rates in general.

Mr. Campbell said that the money should be kept separate from the rates. He thought they would be untrue to the welfare of the people at large if they applied it to reduce the rates.

Mr. Evan Spicer then moved—

"That a special committee be appointed to consider the subject of technical education, and that until such a committee has reported, the sum of 60,000*l.*, part of the estimated produce of the new beer and spirit tax, be carried to a suspense account, and the balance of 123,000*l.* standing to the general county account, be reduced by that amount."

He had, he said, originally intended to propose that the whole sum should be set aside, and he was still of opinion that the Finance Committee ought not to have appropriated it to relieve the rates; but as that had been done, and an extra penny would have to be levied as an alternative, he compromised the matter for fear that it would go forth that the increase in the rates was owing to technical education. What had we in London at the present time in the way of technical education? Beyond the efforts of a few philanthropic gentlemen, conspicuous among whom was Mr. Quintin Hogg, the Technical College at Finsbury, and one or two other smaller institutions, no provision was made for affording technical education. If the sum were applied to the purpose suggested it would be paid to them every year, and if used in a proper manner the Government would no more think of stopping this grant than the South Kensington grant.

Mr. Doubleday seconded the amendment.

Mr. Burns said that technical education was not a local question for that Council to consider, but an Imperial question, which the State, through the various school boards, ought to see to; and anything short of 20,000,000*l.* towards such an object would be tampering with the question as he understood it.

After a long discussion, during which Lord Lingen admitted that an extra rate of a penny would be necessary if the 140,000*l.* were not used in the manner suggested by the Committee, the amendment was lost by a large majority. Two other amendments were also lost, after which the recommendations of the Finance Committee were approved.

London street Advertisements.—On the motion of Mr. Marks the following resolution was carried:—

"That it be referred to the Local Government and Taxation Committee to consider and report how the Council can best acquire the power to control and regulate the business of advertising on hoardings in London, by the granting of licences, the proceeds of which should go in relief of the County rates."

The Council soon after adjourned.

Books.

Encyclopédie de l'Architecture et de Construction: Vol. IV. Premier fascicule. Directeur, P. Planat. Paris; Dujardin et Cie.

THE fourth volume of the Encyclopédie opens with a long article on "Contrefort," tracing the transformation of the column into the buttress, with numerous illustrations. "Corniche" is the subject of a fairly illustrative article, hardly perhaps so complete as so large and important an architectural feature seems to demand. This remark applies more strongly to the article on "Coupoles," signed by M. Alphonse Gosset. Why such a subject should be dismissed with scarcely any illustrations it is not easy to understand, except that in dictionary work generally an editor is necessarily a good deal dependent on the good will and convenience of his contributor, dictionary writing being usually a very thankless class of work to undertake. "Crypte" has a very largely illustrated article; the illustrations are, as usual, drawn almost entirely from French monuments, which is the defect of the work throughout; it is a dictionary of French architecture rather than a dictionary of architecture. "Distribution d'Eau" is well treated by M. L. Borne. The article on "Egine" is very well illustrated, with a restoration of the temple of Ægina by M. Charles Garnier. "Eglise" would seem a subject rather for a book than a dictionary article; the writer states that he limits himself to marking, in a more precise manner than in the article "Cathédrale," and by some new examples, the origin and first developments of religious architecture "sur notre sol," in this case avowedly limiting it to French work. This exclusive nationality of feeling in such a book is to be regretted, because it limits the scope and usefulnesss of what is nevertheless a very remarkable publication of its kind, which we are glad to see is fast progressing.

Guns and Gun Material. By George Ede. London: E. & F. N. Spon. 1889.

This is an interesting little book, and not the least interesting part of it is its introduction, in which the author, who has been engaged all his life in forging weapons of war, laments the necessity for their manufacture, but, whilst advocating the advantages to be derived from international courts of arbitration, still holds that "in the present state of the majority of the human race, and while it remains the custom to fight first and reason afterwards, war will be best prevented by nations appealing to the fears of each other; such as by continuing in their present course of endeavouring to thoroughly equip themselves with the most destructive weapons."

Mr. Ede has worked for many years in the Royal Arsenal at Woolwich, and is already known as the author of a little work of some repute on "The Management of Steel." He is therefore a competent person to treat on a subject with which he has so long been practically connected. Let us see what he has to tell us, for he has "come to the conclusion that the science of gun-making, even in our own country, is considerably behind other sections of science," and he very truly remarks that "finality has not been reached." He demonstrates that steel is the only possible material which, with our present knowledge, could justifiably be used for guns, and the present work is in some respects supplementary to that above quoted. The object of the work is apparently to induce the Government of this country to conduct experiments which shall, in the opinion of the author, be more satisfactory than those hitherto carried out for testing the nature and properties of the steel supplied for gun manufacture, for he considers that we are so much in the dark on those points that no one can draw up a specification for steel for guns which is based on anything much exceeding guesswork. He recommends the supply and testing of 147 barrels of all sizes, divided into batches of 21, supplied by seven different steel manufacturers, and he enters into as much detail as is possible in a work of seventy-four small octavo pages (of a comfortable-sized type) in respect to the subsequent treatment and mode of completion of each sub-division of each batch of this rather considerable stock of ordnance, which is to be provided for testing purposes only, and with the sole object of enabling a reliable specification for gun steel to be prepared. He is not to be deterred by the question of cost, though he anticipates opposition from some quarters, but he dismisses this with the observation that "if it be conceded that the really expensive experiments are those from which nothing valuable can be obtained, and that those which I have suggested are proper, and under present circumstances necessary, then I think, considering how much they promise in the interest of all, they should be carried out."

This is, of course, the crux of the matter, and, whether M. Ede be successful or not in his tournament, we commend the terseness of the style and the simplicity of the language with which he pleads his case.

Hamburg und Seine Bauten. Edited by the *Architekten-und-Ingenieur-Verein zu Hamburg.* 1890. Publishers' Agents: O. Meissner, Hamburg.

Since 1864 we hear of descriptions of German cities being published on occasion of their being selected as meeting-places of the biennial gatherings of the architectural and civil engineering societies (see p. 205, *ante*), and these descriptions, although commenced in the modest form of a guide-book, have gradually attained such dimensions that we now find every two years bulky volumes in relation to Berlin, Dresden, Cologne, Frankfort, and their buildings, of 600 to 800 pages each, before us, containing no more the superficial sketch, but a professional and technical description which even goes into important detail.

This year Hamburg has had its turn (or rather second turn, as in 1868 it had a book of 160 pages). We find the "description" of this most agreeable of all North-Germans cities in the shape of a 730 page volume, edited by a committee of sixteen members of the Hamburg Arch. and Ing. Verein, adorned with no less than 1,377 illustrations. The book, as the introduction says, has been written by members unused to literary labour, in German characters (yet with many a French phrase not admired under the present regime) for Germans, and not for international criticism. It has been divided into the three main sections:—1, history; 2, public work; 3, private work; and each of these three groups has been very fully treated. The historical introduction, written in one chapter, shows us the gradual progress made from the year 811 up to date, and, besides having a good supply of old maps and views reproduced, also has a paragraph of statistical matter. The second section, public work, has been divided into thirty-four sub-divisions, each treating of some distinct subject, pertaining to public works in civil engineering or architecture. The third and last section embraces all private work, the business premises in the city, the stores, hotels and mansions, the residences and villas of the suburbs, and the factories and labourers' dwellings outside the town. We can recommend this book, as well as its predecessors dealing with other cities, as a valuable addition to any reference library.

Correspondence.

To the Editor of The Builder.

THE FIRE AT SALONIKA.

Sir,—Three or four months ago you were good enough to insert, and, still more, to recommend by an editorial note, a letter from me calling the attention of architects and archæologists to the work which was being done by the British School at Athens in the investigation of the Byzantine antiquities of Greece, and inviting subscriptions in aid of that effort.

Although that particular invitation has not met with the response I had ventured to hope for, I am encouraged to renew the appeal under present circumstances. Our architectural students have just been directed to proceed to Salonika for the purpose of carefully examining the ruins and recovering as much as possible from the buildings there, which, it is well known, take the very highest rank in Byzantine architecture, and which are now subjected to a double danger, namely, that of utter destruction if neglected for even a short time on the one hand, and from the great perils incident to restoration on the other. The work already done by the two artists refered to (Messrs. Schultz and Barnsley) has earned the highest possible praise from those who have seen what they have done; but funds are sadly needed to enable them to devote a sufficient time to this very interesting expedition. I need scarcely say that, for their own sake, the School Committee will be anxious to make the results they may arrive at as public as possible. Subscriptions will be received either by Walter Leaf Esq., Old Change, E.C., or by your obedient servant,

F. C. Penrose.

68, *St. Paul's-churchyard.*

"AN EMPLOYERS' UNION."

Sir,—It does not say very much for the vitality or scope of the Central Association of Master Builders that, although employing from 400 to 500 hands, comprising largely joiners, polishers, smiths, labourers, &c., and being as you state, Sir, a well-known firm, not the least invitation to join its ranks, not even a circular, has ever reached us from that body, so far as we can remember, since its inception.

The sooner the auxiliary trades receive an invitation to join this Association, if it is the best existent, the better for them and also for the Association itself, which cannot be too strong.

Large cabinet-making firms, furniture makers, and shop-fitters employ amongst them a very large number of joiners, polishers, &c., but in the event of a strike, however unreasonable, they would pro-

bably be beaten in detail through utter unpreparedness—witness the late strike of French polishers—a body of men considerably overpaid at 8d. per hour, at least by comparison with skilled joiners at 9d., who have to serve a longer apprenticeship and maintain a kit of tools. It is, therefore, highly important either that these allied trades form a union of their own, or that they join the Central Association of Master Builders, if the latter can adapt its regulations to suit the slightly varied classes and rates of labour prevalent amongst the branches we mention. CONTRACTORS.

"A SANITARY NOTE FROM GREENOCK."

SIR,—In reply to the letter from Mr. Ernest van Putten, on p. 272 of to-day's issue, I beg to say that I did not state that the chief object of a disconnecting syphon was to keep out rats, but that this was one of its important uses. Mr. van Putten thinks that allowing the rats free access into the house drains would do no harm. I think he is wrong, for they could eat through any lead pipes they could get at, and they can sometimes run up inside of the pipes and so get into the house. The plumbers and masons sometimes when working at houses leave pipes open, or partly so, when both sewer smells and rats might get into the house if there was no disconnecting on the drain.

Mr. van Putten is wrong in supposing the "continuous" flow in the sewers is such as to prevent smells, for after six p.m., or somewhat later, the flow of the water in the sewers will be much less than during the day, whereupon smells, &c., rise from the sewage exposed to the air between the high and low-water marks.

Mr. van Putten does well to mention that the unsanitary two-gallon closet flushings are unable to wash the soil properly along the drain; but this is no argument for adding the bad smells from the sewer to the drain smells, but goes to show that four-gallon flushes for the closets should be the rule, and that all closet cisterns should have capacity for several two-gallon flushes without waiting till the cistern fills.

Mr. van Putten is wrong in supposing there would be no extra danger incurred by dispensing with the disconnecting trap on the drain, for earthenware closets are easily broken, and many have too little water-lock, while there is danger of sewer air conveying fever germs. Dr. J. B. Russell, Medical Officer of Health, Glasgow, is of the same opinion with me as to this, and could quote instances of fever so produced.

Mr. van Putten seems to me to have had very little experience in house drainage and plumbers' work when he reiterates that "the air in a house drain—disconnected from the sewer by a syphon and with the fresh-air inlet carried up to the top of the house—is practically at a standstill."

With the air inlet at the front of the house and the outlet at the back, there would be pressure of the wind to send a current to the point of least resistance. Then, the sun shining on one of the pipes and not on the other, or one pipe inside of the house and the other outside, all cause differences which produce currents of air through the pipes, and *we do not need these currents to be great or very quick.*

If Mr. van Putten expects me as a plumber to sacrifice my house-drains and soil-pipes, &c., for the benefit of his sewers he is quite mistaken. If he, as a civil engineer, cannot ventilate his sewers satisfactorily, independent of the house-drains, then I fear he is behind the age. Various plans of doing so have been enunciated, and are in practice.

I see one "C. E." has just patented one of the high-level styles similar to what is advocated by me in the "Transactions" of the Sanitary Institute of Great Britain for 1883. I fear he is rather late to claim this as a new idea in 1890.—I am, &c.,

W. P. BUCHAN.

Glasgow, October 4, 1890.

SIR,—In the *Builder* of the 27th ult., your correspondent, Mr. Buchan, in criticising a former communication of mine to your journal, says that my notion that two yards additional length of pipe to a side fresh air inlet of a disconnecting trap would give a greater volume of sewage air to eject on to the street shows that I do not understand the subject of house drainage.

I admit that I have not the large experience and scientific knowledge of your able correspondent, still I take credit for having as much commonsense as to see that he is wrong in some of his assertions. However, when he says that there is nothing in these two yards of pipe to raise a smell, I quite agree with him, for the smell comes either from the contents of the closet that is being discharged, or from the deposit in the intercepting trap, or it may be partly from both.

Again, he says that fifty-five minutes out of every sixty fresh air is passing into the drain, and that though this should be stopped for a few seconds by the discharge of a closet, &c., the fresh air that has been entering has to be first pushed out at the grating before any badly-smelling air can get out, and by the time the badly-smelling air can get the length of the grating the closet has ceased running, whereupon the bad air turns back in the drain and goes up the soil-pipe, and out above the roof. That to a great extent concedes the point I have been contending for—viz., that the air in the pipes is ejected on to the street through the grating, which ought not to be; but that the badly-smelling air, when it gets down to the trap, should turn back and go up the soil-pipe and out above the roof is a novel idea. Suppose a closet or bath is discharged at the top flat of a four-storey tenement, where there are eight tenants. The discharge acts like a plug, or piston, driving before it the greater part of the air in the pipe between the point of discharge and the trap, while at the same time, above the roof, there is a rush of fresh air into the soil-pipe following close on to the discharge, and by the time it reaches the trap it has acquired such a velocity that, instead of merely glancing into the trap and turning back and going out at the roof, as stated by Mr. Buchan, the impetus it has acquired in its descent continues for a little after the discharge has reached the trap. The result is that it moves on towards the fresh-air inlet and on to the street. But admitting Mr. Buchan's view of the matter to be correct, that the foul air has turned back and is ascending the pipe, while the other closet in the top flat is being discharged, in that case the foul air from the previous discharge must be ejected on to the street. X. Y.

FONTS.

SIR,—I have lately been staying at Penmaenmawr, in North Wales, and while there I was struck with the unusual character of the font at St. Seiriol's Church. It is a modern one, about twenty years old. The bowl is large, and prettily ornamented with a bold carving of water-lilies, but the peculiarity consists of a small column standing on the west side of it, which supports a stone reading-desk which rests on the edge of the basin of the font.

Fonts having such appendages are not often seen, and as I have been for some years collecting instances of them it may interest your readers to hear of some. The only other modern one with which I am acquainted is at Wraxall, Somersetshire. This has a stone book-rest attached to the pillar against which the font is placed. It is, I believe, about sixty years old.

At Beckley Church, Oxfordshire, is a massive plain tub-shaped font, and close beside it is a small column of Perpendicular work supporting a stone desk. This is figured in the "Guide to the Architectural Antiquities in the Neighbourhood of Oxford." At Pitsford, Northamptonshire, is a fourteenth-century font of octagonal shape, and to one of the eight sides is attached a species of bracket perforated with four holes. The use of this has not been satisfactorily ascertained, but it was possibly the support of a book desk.

At Heyford, Northamptonshire, is a font, the plain, round basin of which is oolite, resting on a stem of red sand-stone, and attached to this stem where it joins the basin is a stone bracket, for what purpose is not apparent. At Faxton, in Northamptonshire, is a font with a plain circular basin, and in the exterior of this basin a rudely cut recess has been made, 4½ in. high, 5 in. wide, and 2½ in. recess. This was probably to hold some of the things enjoined in early baptismal ceremonies—such as the holy oil or salt. A circular font at Rainham, Essex, has a small bracket attached to its upper edge.

A font at St. Martin's, Exeter, has a pocket-like receptacle attached to it just below the moulding, where the octagonal basin joins the pillar which supports it. A fourteenth-century font at Odiham, Hants, has a curious projection on one side. This has, however, not been added to the font, but has been cut out of the same piece of stone as the font. It has been hollowed out into a sort of trough, 5½ in. in length, 2½ in. in width, and 1½ in. in depth, and at each end of this trough is a hole pierced. The font is further interesting by having the text, "Auxiliū meum a dnō qui fecit cœlum et trā," in raised characters, about 6 in. high, round the bowl. This text is preceded by a pretty lily-like flower.

A font at Youlgrave, Derbyshire, of circular form has a small basin-like appendage attached to one of its sides, a winged dragon lying with twisted tail on its back is carved on the bowl of the font, and apparently holds the smaller basin in its mouth.

At Princes Town, Jersey, is an old font now lying disused in a public tea-garden! This font has a small basin fastened to the inside edge of the larger bowl.

At Nun Monkton, Yorkshire, is a round font standing on an octagonal stem and step, and in one of the angles of this step is sunk a rounded hollow, 7½ in. in diameter and 3 in. deep.

A wooden font found in a bog at Dinas Mawddwy, Merionethshire, has a large round basin hollowed in it, and by the side of this a second much smaller basin has been cut. A font of stone with a similar arrangement of a large and small basin, side by side, is at Cossenil, near Grenoble.

Several fonts on the Continent have appendages attached to their sides resembling a smaller font standing beside the larger one. The small one is used as a piscina to receive the surplus water which falls from the head of the baptised person, so that it shall not return into the font and be mixed with the consecrated water. Of these, I may mention fonts at Quimper, Guingamp, St. Pol de Leon, Clisson, Chirens, St. Nicolas de Macherin, Blèves Villers, Canvoct (Falaise), and Roche Mabille.

Two Swedish fonts,—those of Björland and Säfve,—have an arrangement very similar to the one at Nun Monkton, in Yorkshire, having small round receptacles sunk in the lowest step.

EMMA SWANN.

Walton Manor, Oxford, October 4, 1890.

ILLUSTRATIONS OF THE "VICAR OF WAKEFIELD."

SIR,—With regard to what you describe [p. 262, *ante*] as "an extraordinary oversight" in my paper on "The Vicar of Wakefield and its Illustrators," permit me to refer you to the statement (in the first paragraph) that it gives an account of the story "exclusively in its aspect as an illustrated book." If I mention Stothard's drawing, it is because it is exactly like the other drawings he prepared for the engravers of his designs for books; if I mention Mulready's pictures, it is because they were elaborated from his book illustrations. I am perfectly aware that, besides those you name, many artists, *e.g.*, Ward, Maclise, Woodward, have sought in the "Vicar" the subjects for paintings, but to have enumerated these works would have been beside my purpose. AUSTIN DOBSON.

Ealing, W., October 6, 1890.

The Student's Column.

HOT-WATER SUPPLY.—XV.

IN reference to the conversion of a tank to a cylinder system, treated of in our last, it remains to be added that whenever a conversion is effected, and it is found that a draw-off service is connected to the flow-pipe below the cylinder, this service must be cut off and reconnected to the rising main above the cylinder, as it will now be understood that the chief advantage, the safety, of this system is effected by omitting all means of emptying the cylinder, except by the special cock with loose key that is provided for workmen's use and emergency. If, in the conversion last explained, anything would be gained by leaving the original return pipe untouched, this may be done, as no particular benefit will be effected by cutting this pipe and connecting the two ends into the cylinder; it can be left as it existed before, running from the tank to the boiler, the cylinder being inserted into the flow-pipe only.

TWIN BOILERS AND SERVICES.

There are at this moment hundreds, if not thousands, of houses, particularly in the West-end of London, that have the old-fashioned open ranges in their kitchens, these ranges having two boilers fitted in them. These are not exactly "twin" boilers, but they will serve to illustrate the use and occasional necessity of these articles.

The object of having two boilers in these old ranges was twofold; firstly, one boiler was considered and generally found to be incapable of providing sufficient hot water for the whole house, and it became necessary to put in two boilers with a proportionate increase in the size (width) of the fire, so that one could be used and kept distinct for kitchen supply, and the other for baths and the other taps in the house. This arrangement was so customary that makers of modern ranges are continually being asked if they are sure the one boiler in their ranges is sufficient for all purposes, and the enquirer is often incredulous if answered in the affirmative, as the boiler in a modern range may only be half the size of one of the boilers in their existing range.

The only argument in favour of the two boilers in the open range was that the demand for hot-water in the servants' offices need not exhaust the bath supply, or *vice versâ*, but this argument cannot hold good with a modern range, provided it has a good boiler. The arrangement of two boilers, however, became so customary that great numbers of houses will be found to have a cistern at the top and another below, one for upstairs use, and one for kitchen supply (for both hot and cold water), but this is now quite unnecessary so far as the hot water is concerned.

Sometimes instead of two boilers a single boiler of large size was used, this boiler supplying the kitchen under low pressure, and within this boiler was fitted a coil of pipes which acted as a heating medium for a hot-water circulating apparatus, that was in connexion with them, for bath supply, &c.; this is a wretched arrangement, as, in the first place, hot-water is a poor

medium to heat water with, and secondly, every time a drop of hot-water was drawn in the kitchen the coil was cooled to some extent by the cold water flowing in. The two boilers were better than this, but neither could possibly be recommended now.

An occasion that arises for the use of twin boilers is when the cistern at the top of the house is insufficiently large for all purposes, and the cistern which we must suppose exists down below has of necessity to be relied upon. It will be obvious that the two cisterns cannot anyhow be made to supply one apparatus (if any part of the apparatus extends up above the lower cistern), and it becomes necessary to have two boilers in the fire, each doing distinct work with a distinct supply. This, fortunately, rarely happens, as it is an unsatisfactory arrangement, and an effort is always made to overcome the difficulty by adding to the storage capacity of the cistern at the house-top, so that it can meet all demands, and so need only one boiler. It is hardly necessary to mention that the arrangement of two boilers is much the more costly, and as it necessitates an increase in the width of the fire the consumption of fuel is greater, and the range has to be strengthened to withstand the greater wear and tear caused by the greater heat evolved, &c.

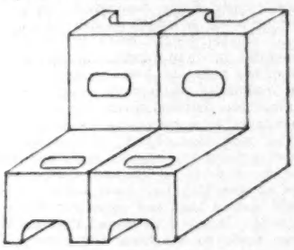


FIG. 32.

Fig. 32 illustrates a pair of boilers to go at the back of a kitchen range, but to get a separate flue to each it becomes necessary to have the fire of a most extravagant width, especially if both boilers are not required all day. The difficulty is, therefore, overcome to some extent by

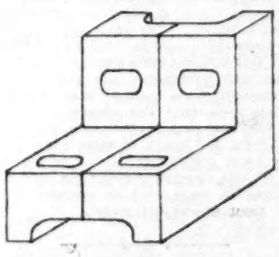


FIG. 33.

making the boilers as fig. 33, but here a disadvantage presents itself in the fact that no means can well be devised to work one boiler independently of the other.

When a pair of boilers are really necessary, it is practically impossible to make them each of an exactly suitable size for the work each has to do. The consequence of this is that in all probability one boiler will overdo its work, and the other fail, and under any circumstances some annoyance will be felt by the boilers working unequally. A very marked instance of this is when one boiler is used for circulation, and one for steam cooking. The circulating boiler must, of course, be capable of good work, and the steam boiler has to be powerful. Yet this latter boiler may be only in use for two or three hours in the morning, and for the rest of the day the increased size of fire is a mere waste of fuel, and the water boiling furiously for no purpose. If it is at all possible to avoid using two boilers in one fire, it is much the best to do so.

Coming within this subject is an arrangement for connecting and using two distinct boilers (say, in two different rooms) attached to one circulating apparatus; this is often resorted to, and is frequently of great convenience, particularly where the demand for hot water varies to any great extent during the day or in different seasons. In some institutions,—colleges, for instance,—the quantity of warm water required for early bathing is frequently very large, and complaints then occur of the kitchen-range boiler being quite unequal to meet this excessive demand, although quite able to supply sufficient at other times in the day. The remedy, in this instance, would be to introduce an independent boiler; but on this occasion it would be best to still retain the services of the range boiler, as it will not only aid the other materially, but it will permit of the independent boiler fire being let out when the demand has slackened; or there are cases where a second range of smaller size exists in the kitchen or scullery, and if fitted with a circulating boiler it can be connected on to the apparatus which is worked by the large range, so that whichever is in use (or if both are at work) the supply of hot water does not cease.

The usual way of connecting up the two

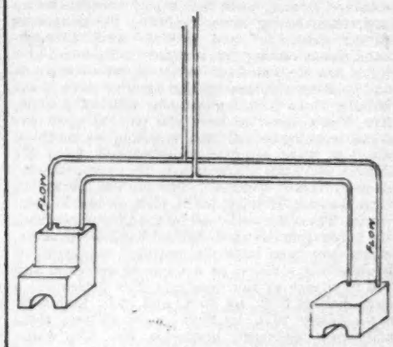


FIG 34.

boilers is as shown at fig. 34, the flow-pipe from each being joined at the nearest point, and the return pipes in a similar manner; if it is the cylinder system the pipes can be made to enter the cylinder from each side, or they can be jointed at the nearest point as just explained.

It is sometimes recommended under this arrangement to have a stop-cock inserted in each flow and return pipe (four in all), so that when one boiler is undergoing any repair or being cleaned, the stop-cocks in that pair of pipes can be closed, and so permit of the other fire being used, and providing the customary hot-water and cooking conveniences. This is certainly very convenient, but the introduction of stop-cocks into the main (primary) flow and return pipes is a most objectionable and sometimes disastrous practice; the least forgetfulness, or any conscious or unconscious trifling with the cocks, may lead to an accident, which is invariably fatal to any one who may be near.*

Sometimes twin boilers can be avoided by carrying two distinct sets of pipes from one boiler, but it will be clearly understood that these two systems must be fed by one cistern (or two cisterns on the same level), with the expansion pipes both carried to an equal height, otherwise one will, of course, overflow the other the instant they are charged (unless an arrangement of stop cocks is introduced, which, however, would not permit of the two systems being worked at one and the same time). An arrangement of this kind is of use when one or two small coils are to be heated, say, for an entrance-hall, from the kitchen boiler. It is then best, if it can be possibly managed, to take a flow and return service from the boiler, independent of the ordinary flow and return; this coil service *may* have stop cocks, provided none are inserted in the other pair of pipes, and this will permit of shutting off the coils when the tank or cylinder is to be heated up quickly, or when the heat from the coils is not needed. This subject of coils in connexion with kitchen range boilers will be treated fully in a later paper.

There is no objection to carrying more than one rising main (secondary flow) service from the top of the cylinder, if hot water is wanted at a distance in different directions, these various services being either brought back into one return or each having its own return to the cylinder. At one of the Hôtels Métropole just erected there are four 1½ in. secondary flow-pipes, as water is wanted in great quantity in different parts of the building; the cylinder however is heated by steam, being made of copper and much like a multitubular boiler, but of course an independent boiler would heat it equally well if there was not steam to spare.

* It is but a short time ago that a plumber—a practical man—lost his life through omitting to open these stop-cocks when testing a boiler, after having done some work which necessitated their being closed. He was killed instantaneously.

GENERAL BUILDING NEWS.

The New Spanish Church, Manchester-square.—The new Roman Catholic church which replaces the old chapel of the Spanish Embassy in Spanish-place, Manchester-square, was opened on September 29. The first stone of the building was laid on June 17, 1889. The architects of the new building are Messrs. Goldie, Child, & Goldie. It is a large and massive structure in the Early Gothic style. Externally it is of Portland stone, and internally the whole building is faced with Bath stone. The columns are constructed of Hopton Wood stone and Derbyshire marble. There are double aisles to every part of the building, and the whole is vaulted in stone. The builders are Messrs. Dove Brothers. The length of the church is at present about 160 ft., and the height to the vaulting over 60 ft. The exterior is very unfinished, but it is proposed to lengthen it considerably, to construct a tower and spire upwards of 200 ft. high, and add gabled roofs and turrets to the transepts. A good idea, however, of the fine proportions of the church may be gained by the view from South-street. The internal fittings, altars, &c., are all temporary, and have been removed from the old chapel. We have published the following illustrations of this church in the *Builder*, viz., Exterior Views, August 1, 1885, and June 4, 1887; Interior Views, August 1, 1885, and June 11, 1887.

New Church, St. Anne's, Stanley.—On the 27th ult., the new memorial church of St. Anne's, Stanley, Lancashire, was consecrated by the Bishop of the diocese. The building consists of nave, 27 ft. wide, 87 ft. long, in six bays; north and south aisles; baptistery at the west end; chancel, 42 ft. long by 27 ft. wide, with chapel on the south side, and organ-chamber, choir, and clergy vestries, with lavatories, &c., on the north. The principal features of the exterior are the tower over the chapel, the main porch, and the west five-light window. The walls of the church are of stone, that for the exterior being from Woolton and the interior from Runcorn, of variegated colour. The woodwork of roofs and seating is of pitch-pine, the stalls and other furniture being of oak and teak. The roofs are covered with grey Welsh slates, except that of the tower, the covering of which is green Westmorland slate. The flooring of the naves, aisles, &c., is of pitch-pine block paving, laid by Messrs. Roger L. Lowe, & Co., of Farnworth; the flooring of the chancel and sacrarium is of marble and glass mosaic. The altar steps are of white marble. The stalls have carved ends, and the screens enclosing them are traceried and carved. The screen on the north side is divided into five bays, and has a central doorway. The screen on the south side has six bays. The reredos is composed of Derbyshire alabaster, with Devonshire marble retable. The subject of the carving is the Last Supper, a composition by Mr. Walter Lonsdale, of London, who was also the designer of the stained glass. The pulpit is of Ancaster stone, with red stone plinth and base, supported by five shafts of Devonshire marble. The font is of Ancaster stone, supported on Devonshire marble shafts. The building is heated with hot water. The windows generally are glazed with glass in lead quarries. The general contractors for the building are Messrs. Jones & Sons, of Liverpool. The reredos, pulpit, and font, by Messrs. Earp & Hobbs, of London and Manchester; the screen and choir stalls by Mr. Harry Hems, of Exeter; the heating by Messrs. J. R. Cooper & Sons; the mosaic flooring by Mr. George Swift. The stained glass of the east window has been executed by Messrs. Heaton, Butler, & Bayne, of London. Mr. Thomas Hallam acted as clerk of the works. The architects are Messrs. Aldridge & Deacon, of Liverpool.

New Meat Market for Edinburgh.—On the 2nd inst. the Edinburgh Central Meat Market Company's new premises in Ponton-street were formally opened for business. The market, which is built of brick, with facings of Corncockle stone, measures 80 ft. by 80 ft. The side walls are 18 ft. high. The premises are suitably lighted and ventilated. The total cost of ground and buildings is about 4,500*l*. The contractors were Messrs. James Duncan & Son, and the architect Mr. W. H. Grey, of Edinburgh.

Proposed New Church for Barry.—We are informed that a gentleman holding important local interests has placed 500*l*. in the hands of the Bishop of the diocese towards the erection of a new church at Barry. A grant of 400*l*. has also been voted by the committee of the Bishop of Llandaff's Fund, and a site in a good central position has been given by Mrs. Jenner, of Wenvoe Castle. Plans for the building are being prepared by Messrs. Kempson & Fowler, architects, Llandaff. It is proposed to build, in the first instance, only one portion of the fabric (nave, chancel, and one aisle), estimated to hold 600 persons. The cost of the first portion of the fabric is estimated at from 3,000*l*. to 4,000*l*.

New Wesleyan Chapel for Huddersfield.—A new Wesleyan Chapel for the Wesleyans of the Gledholt Circuit, Huddersfield, has just been opened. The new chapel has been erected on a site at the corner of Blacker-road and New Hey-road. There is accommodation for 700 seat-holders, 390 on the ground floor and 310 in the gallery. The total cost of the works is about 6,000*l*. The architects were Messrs. John Kirk & Sons, of Huddersfield.

New Wing, Sir Patrick Dun's Hospital, Dublin.—On the 1st inst., the Clinical Session in this hospital for 1890-91 was begun, and a new wing on the east side of the main building, containing four wards, and intended specially for the reception of fever patients, was opened. The new east wing contains, besides the wards, bedrooms, dining, and sitting-rooms for the nurses, laundry, ironing, drying, and disinfecting-chamber. Each ward is to contain five beds. The architect was Mr. C. R. Owen, the builder being Mr. Collen.

New Forge and Steel Works, Renfrew, N.B.—These new works, situated on the lands of Porterfield, have now been completed. The site lies between the Glasgow and South-Western Railway from Paisley to Renfrew, and the River Cart. A railway connexion has been made with the main line, and a connexion is being made with a dock in the course of construction at the river. The building is a structure consisting of eight spans, the largest of these being 60 ft. in width, and covering in all over two acres of ground. They are constructed of iron throughout, the roofs being carried by iron pillars, and H columns supporting heavy-built steel girders. The roofs, sides, and ends are sheeted with galvanised corrugated iron. The buildings are the work of the Glasgow firm of Arrol Brothers, Germiston Works, from designs furnished by the Chairman and Manager of the Company, Mr. Jas. Miller.

New Wesleyan Chapel at Crosby.—On the 30th ult., the memorial stones of a new Wesleyan chapel and school in Mersey-road, Crosby, were laid. The chapel is cruciform in plan, with aisle, nave, and transepts, octagonal chancel, and organ-chamber. At the western side of the chancel are placed the minister's vestry, ladies' rooms, and numerous class-rooms, which are connected with the lecture-room. The walls will be faced with Yorkshire shoddies and Stourton stone dressings. The internal part of the walls is of brick, and all the foundations are of concrete. The timber work throughout is of pitch-pine. The work is from the design and was carried out under the supervision of the architect, Mr. J. Francis Doyle, and his brother, Mr. S. W. Doyle, the clerk of works being Mr. Samuel Gunning. The contractor is Mr. S. Webster, of Bootle. The chapel will accommodate about 650 worshippers.

Proposed New Hospital for Todmorden.—According to the *Manchester Courier*, it is proposed by Mr. John A. Fielden, of Todmorden, to erect a new hospital for infectious diseases at Southall, Todmorden. The hospital will consist of two blocks of buildings, and will have caretaker's house, offices, ambulance, stabling, and other necessary accommodation. Thirty beds will be provided for the use of the inmates. Plans have been prepared by Mr. John Sutcliffe, architect, of Todmorden.

Brighton Cemetery Chapels.—The Brighton Burial Board at their last meeting adopted the report and recommendations of their chairman, Mr. Arthur Loader, architect, to secure the tower of the Parochial Cemetery Chapels and reconstruct part of its stone spire. The Board further decided to employ Mr. J. T. Chappell, builder, of London and Brighton, to proceed with the work forthwith.

Proposed New Townhall for Tunbridge Wells.—Tunbridge Wells, which was incorporated last year, is considering the question of a new Townhall. At the meeting of the Town Council last week, the Watch Committee recommended the purchase of the Camden Hotel and other property contiguous to the present townhall, with frontages to Camden-road, Calverley-road, Calverley-street, and Garden-street,—this site forming a square block surrounded on all four sides by streets,—for the purpose either of adding to the existing townhall or of erecting new buildings at some future date. Some objection was taken to the proposals of the committee, on the ground that the streets surrounding the site were too narrow to accommodate the additional carriage traffic which was likely to be brought into them by the erection of a large town hall, and the consideration of the report was adjourned for a month.

Willesden Cemetery.—The Willesden Burial Board, at an adjourned meeting on the 29th ult., after consultation with Mr. Charles Worley, the author of the successful plan for laying out and building upon the new burial-ground, came to an agreement about the plan, and directed Mr. Worley to proceed at once with the work of preparing the specifications and working drawings.

North Staffordshire Technical Museum at Hanley.—A very large collection of pottery and glass, with one of ancient Greek goldsmiths' work, is being arranged by Mr. Chaffers, as the buildings are to be opened this month. The *Staffordshire Advertiser* of October 4 says that on a detailed examination of the original structure it was found that considerably more than the ordinary decorators' and furnishers' works would be necessary, as the buildings have been built some time and at a minimum original cost, and having had little care bestowed upon them, had fallen into a lamentable and dangerous state of general dilapidation. The indispensable repairs were in due course sanctioned by the Hanley Corporation. Amongst such works may be named new ceiling light and beams and plasterwork; new slated roof and skylights, and roof plumbing; removing old external timber, gangways, partitions, and insanitary fittings; new sanitary fittings and drains; new plastering; new entrance vestibule, with plate-glass swing-doors; new low-pressure hot-water heating apparatus, by Haden & Sons, to the museum, laboratory, and entrances, of sufficient power to heat also the present School of Art system of pipes if eventually required; new platform in museum; special summer and winter ventilation to the whole premises, including shafts from the free library; brick buttresses in cement through three stories to stiffen the old structure; new smoke and ventilation stack 70 ft. in height; new beams and pillars, and ceiling and cornices under old upper floor, which was settling; forming open timber roof over laboratory and strengthening same, removing the dangerous parts; decorators' and painters' work throughout; reconstructing old stopped smoke-flues; new locks, new steps at front entrance, repairing yards and pointing with mastic the exterior walls of the building; new boarding on cedar felt to the floors, &c. The Committee have had painted upon the frieze running round the museum, as mottoes, about a score appropriate quotations from Sir Joshua Reynolds, Shakespeare, Tennyson, Ruskin, Shelley, Keats, Emerson, Milton, the Bible, Sir Isaac Newton, Herrick, Swift, Cowper, and Wordsworth. These were selected by the Committee from 100 taken from the whole field of English literature, which have been tastefully reprinted (accompanied by illustrative views) as a museum souvenir, and will be on sale at the opening. The museum is a large hall of 80 ft. by 45 ft. and 28 ft. high with north gallery 23 ft. by 20 ft., south gallery, store and committee-rooms, lavatories, &c. The whole of the works have been carried out to the plans and under the superintendence of Messrs. W. Sugden & Son, architects, Leek. Mr. N. Bennett, of Burslem, was the builder, and Messrs. Haden, of Manchester and Trowbridge, were the engineers. The gifts to the permanent collection include large medallions by Stephen Webb, of Newton, Reynolds, Shakespeare, Milton, and Tennyson, presented by the architects, and cases of silk-producing moths (Leek industry) given by Mr. H. Davenport, Woodcroft.

Old Mifford Church.—It has been determined that the church at Old Mifford, Wales, shall be enlarged. The preparation of the designs has been entrusted to Messrs. Kempson & Fowler, of Llandaff, and it is hoped that the work may be commenced early next year.

SANITARY AND ENGINEERING NEWS.

Society of Engineers.—At a meeting of the Society of Engineers, held at the Town-hall, Westminster, on the 6th inst., Mr. Henry Adams, President, in the chair, a paper was read by Mr. W. Santo Crimp, M.Inst.C.E., on "Sewer Ventilation." The author first pointed out that it had been constantly assumed that the movements of sewer-air were almost entirely due to temperature, an assumption which he found did not subsist upon a satisfactory basis. He then referred to the experiments of Miller, Beetz, Miquel, Carnelly, and Haldane, which were made more especially with a view to ascertaining the number of micro-organisms present in sewer-air, relatively to those in the atmosphere. In the result it was found that sewer-air contained fewer; but the author pointed out that their nature might probably differ widely. With regard to the excess of carbonic acid generally found in sewers, the author suggested that it was probably largely due to the mingling of the ground-air with the sewer-air, in cases where sewers were not air-tight. Referring to other gases found in sewers, he pointed out that these gases were in themselves incapable of producing fevers of the zymotic type, and argued that such fevers, when caused by sewer-air, were due to the germs of disease present in the sewer air, and suggested that it was undesirable to set up rapid air currents in sewers, in the absence of which these germs would fall back into the sewage from which they arose. Dividing sewers into two classes, namely, those into which men could not enter, and the larger ones in which they were frequently employed, he suggested that the smaller ones should simply be provided with vents, carried high overhead, and sufficient in number to prevent the house-traps being forced; although a properly drained house should be proof against the most severe test. The large sewers, of course, had to be very fully ventilated, at any rate whilst men were employed in them. The direction of the sewer-air currents varied with that of the wind, being sometimes uphill and as frequently downhill. The amount of movement of the sewer air was also in accordance with the velocity of wind. Having regard to these facts, he suggested that in the ventilation of sewers the fullest advantage should be taken of the wind as a motive power, and that it should be deflected into the sewers, or made to induce out-currents, as may be found desirable.

Civil and Mechanical Engineers' Society.—On Friday, the 26th ult., by the kind permission of Mr.. A R. Binnie, Engineer to the London County Council, the President, Mr. Henry Adams, and members of the Civil and Mechanical Engineers' Society, visited the Crossness Outfall Works, and inspected the new storage reservoirs and building, which Mr. Houghton, the resident engineer, said would be completed in nine months.

The Drainage of Oxton.—At the monthly meeting of the Birkenhead Town Council, which was held on the 1st inst., the proceedings of the Road and Improvement Committee contained a report by Mr. G. F. Deacon, C.E., on the schemes for the drainage of Bidston and Talbot roads in Oxton; and Alderman Willmer, in moving their adoption, said the Borough Surveyor proposed to lay a brick sewer in this district, but certain ratepayers thought such a sewer too large, and that a pipe sewer would be sufficient for all purposes. Mr. Deacon, however, had confirmed and approved of the plan submitted by the Borough Surveyor. Alderman Inglefield seconded the proposition, and the report was approved.

Plymouth Water Supply.—Mr. S. J. Smith, C.E., Local Government Board Inspector, held an inquiry at the Municipal Buildings, Plymouth, on the 30th ult., respecting the application of the County Council of Plymouth for the sanction to borrow 10,000*l*. for the purposes of water supply. The memorial to the Local Government Board set forth that the Plymouth leat being an open channel, which for a distance of eight miles carried the water supply of the borough on its course to the town, was for a length of five miles or thereabouts of varying widths, was not watertight, and was generally in such a condition that in certain seasons of the year the loss by evaporation and leakage materially diminished the water supply. The Council was desirous of carrying out such works on the leat as were necessary to make it watertight, and with that object proposed to face the sides with granite blocks, and to form a concrete bed for the channel in the same manner as other portions of the leat had been treated, and the estimated cost of that and other incidental works was 10,000*l*. It was also stated that application had been made to the Local Government Board, and was now pending, for sanction to raise 4,800*l*. to meet the estimated cost of the reconstruction of the Drake's-place reservoirs. No one opposing, the Inspector proposed to visit the leat, when the inquiry terminated.

An Insanitary Post-office.—At the meeting of the Stratford-on-Avon Corporation on the 7th inst., a serious charge was preferred against the Post-office authorities by Alderman Dr. Wason. For twelve or fifteen years the town has been promised a new post-office, and the work, which has increased enormously of late years, has been carried on under exceptionally trying conditions in a very small building. Two years ago the authorities selected a site for a new post-office, and plans were prepared, but nothing more has been done. In the meantime, the postmaster has died. Alderman Wason, speaking as a medical man, said he would deliberately state that the present small and insanitary building that served as a post-office was answerable for the death of more than one person who had been employed there. Ultimately the Town Clerk was directed to bring the matter, which was declared to be a positive scandal, under the notice of the Postmaster-General.

STAINED GLASS AND DECORATION.

Memorial Window for Creich Parish Church, N.B.—In memory of the late Rev. Alex. Lawson, who for sixty years—from 1815 to 1875—officiated as parish minister at Creich, a two-light window has been presented to the church and parish by relatives of the deceased. The window, which has been designed and executed by Mr. Nathaniel Bryson, Edinburgh, is Gothic in character, and measures 12 ft. from sill to apex. In one of the lights there is a figure representing John the Baptist, and in the other St. Paul, while in the tracery is a portrait of the deceased clergyman.

Reredos, St. John's Church, Canton.—The reredos recently erected in St. John's Church, Canton, to the memory of the late Vicar (Rev. V. Saulez), has just been completed. It is of Gothic design, and constructed of Caen stone, with green and red Irish marble dressings. The three niches are filled with oil-paintings, on a gold ground, portraying respectively "The Good Shepherd," St. John, and St. Peter. The work was designed by Messrs. Kempson & Fowler, of Llandaff, the execution of the work being entrusted to Mr. Clarke, also of Llandaff.

Belgian Recognition of British Ventilators.—The Council of the Académie Universelle of Science and Arts, Brussels, have awarded a special diploma of honour and medal of the highest class to Messrs. Baird, Thompson, & Co., ventilating, heating, and sanitary engineers, London and Glasgow, for their improved systems of ventilation and sanitary appliances.

FOREIGN AND COLONIAL.

France.—The committee for inquiring into the project for a maritime canal between Paris and Rouen has been officially constituted, under the presidency of M. Alphand.——The Chamber of Deputies will have shortly placed before it for consideration a project for the demolition of the fortifications of the town of Saint Omer.——The estate of Chambord, long uninhabited, will shortly be taken possession of by the Duke of Parma and the Comte de Bardi, to whom the Comte de Chambord has left this historic domain and château.——A committee has been formed at Chinon (Indre et Loire) for the erection of a statue of Jeanne d'Arc in one of the public places of that town.——The grand hippodrome at Bordeaux, only recently opened, has been completely destroyed by fire.——At Lyons a hitherto unknown painting by Karl du Jardin has been discovered.——The competition for the construction, at Melun, of a building for storing the departmental archives of the Seine et Loire, has just been decided. The first premium has been given to M. Léon Majoux of Paris; the second to M. Prosper Bulot, of Melun; the third to M. Léon Beaubourg of Paris.——The decision on the competition held at Epinal (Vosges) for a new Lycée, has been decided, with the following results:—First premium, MM. Clasquin and Mongenot of Epinal; second premium, MM. Coquart (member of the Institut) and Delaire, of Paris; third premium, M. Jasson, of Nancy. Honourable mentions were given to MM. Schüler and Berger, of Nancy, and to M. Jacob, of Paris. The building will cost about 2,500,000 francs.——The excavations near Bourges, for the construction of a bridge over the Auron, have led to an interesting archæological discovery. Parallel with the course of the river a series of sculptured steles has been found; and in their rear a considerable number of coins, pieces of pottery, a hand-mill and several grindstones.——The inauguration of the monument to Flaubert at Rouen, which was to have taken place in November, has been put off indefinitely to give time to M. Chapu to retouch the medallion portrait, with which he was not satisfied.——There is to be inaugurated at Bergerac, shortly, a monument to the memory of the members of the "Gardes Nationaux mobiles" of Dordogne who fell in the Franco-German war.——The works going on for the repair of the cathedral at Cahors have led to the discovery, on removing some coats of whitewash, of some large frescoes in an excellent state of preservation, and with richly decorative borders. They are representations of eight prophets. In the centre of the cupola there is also a martyrdom of St. Stephen, of the thirteenth century. There is (alas!) talk of "restoring" this.——M. Aimé Morot has completed his decorative paintings for the Salon d'Honneur of the Hôtel de Ville at Nancy, which will be shortly fixed in their place.——The workmen occupied in digging the foundations for the new Hôtel de Ville at Evreux have come upon a quantity of Roman coins of the third and fourth centuries.——The scaffolding has been removed from the ceiling of the Salle de Beauvais at the Louvre, and M. Duran's painting of the Triumph of Marie de Medicis is now exposed to view. The moulded framework surrounding the painting is now being completed.

Denmark.—The East Street of Copenhagen, the principal thoroughfare in the Danish capital, has been improved during the summer at a cost of 5,000*l*. Other improvements in Copenhagen are to follow. It has now been definitely decided to build a large industrial museum in Copenhagen at a cost of about 30,000*l*. It is to contain complete samples of past and present Danish industries. The so-called Prince's Palace in Copenhagen, wherein are stored the national Norse and ethnographical collections, is to be re-modelled and greatly enlarged, besides which the building is to be isolated, so as to render it safe from external fire. Prof. Storch has been entrusted with the work. The building is one of the most imposing in Copenhagen, and dates from last century. The excavation of the ruins of the Antvorskov Cloister is now taking place, a great portion having been laid bare. The building is of interest by being the only cloister in Denmark in the Romanesque style. It was built in the twelfth century for the Order of St. John by King Waldemar the Great.

New Russian Harbour.—The Russian Government is constructing a great new harbour at Treulibshof, four versts north-east of Libau. At first it was suggested to make the harbour in the latter place, the cost being estimated at 60,000,000 roubles, but this idea was abandoned. The new harbour will cost 13,000,000 roubles, and will be finished in five years. There are to be two tidal basins, with separate entrances, protected by a large breakwater.

The New Opera House in Stockholm.—The Swedish Minister of Public Works has now under consideration the plans of the new Opera House to be built in Stockholm. Afterwards the local authorities will consider them. An expert has been despatched to study the interior arrangements in the leading theatres abroad, but it seems decided that the process of impregnation of decorations, curtains, &c., will not be adopted, it having been found in several foreign theatres that the process only protects against fire for a short while, and that, moreover, it is injurious to the atmosphere on the stage.

The New Swedish Houses of Parliament.—A member of the jury for adjudicating upon the plans of the new Swedish Houses of Parliament has caused the designs of Herr Helgo Zetterval, the Government Architect, and which have been accepted in their main features, to be published at his own expense. There are sixteen plates in half the size of the original drawings, handsomely reproduced by the Lithographic Institute of the General Staff in Stockholm. Borings have shown that the site of the new buildings is satisfactory, of which some doubt was entertained.

MISCELLANEOUS.

Extension of Dover Harbour.—The Dover Harbour Board have just decided upon some very extensive harbour works. It has been decided to apply next session for a Bill to authorise the Board to spend 300,000*l*. upon the extension works, and to raise the money by means of a small passenger tax. It is proposed to enclose a large area of water between the Admiralty Pier and a point to the eastward opposite the Esplanade, where a structure similar to the Admiralty Pier will be run out. The enclosed area will be utilised as deep-water docks, while one portion of it will be devoted to covered water stations, with accommodation for trains on either sides of the vessels. It is estimated that the whole work can be completed in three years.

Sanitary Association of Scotland.—The Board of Examiners in Sanitary Science held an examination in Marischal College, Aberdeen, on the 1st inst., when nine candidates presented themselves. Certificates of competency in Sanitary Science were granted to five candidates, namely:—Mr. James J. Little, Assistant Sanitary Inspector, Pollockshaws; Alex. Knowles, Assistant Sanitary Inspector, Aberdeen, with commendations; James Mackintosh, Assistant Sanitary Inspector, Aberdeen; George Horne, Surveyor, Milton of Campsie; David A. Duncan, Water Inspector, Stirling.

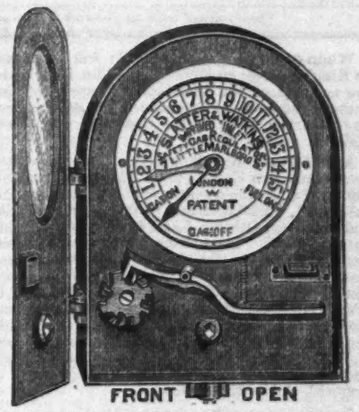
Honeysett's Patent Hydraulic Calculating Rule.—An instrument, resembling an ordinary slide-rule, has been devised and patented by Mr. Honeysett, by the use of which time and labour may be saved when such calculations in hydraulic engineering as the velocities and discharge of pipes and conduits have to be frequently made. The rule, which is based on Bazin's formula, contains eight scales, four of which correspond to the different nature of the channels under consideration, which may vary between smooth pipes and ordinary river courses. The velocities in feet per second and the quantity discharged for any of these channels, according to the hydraulic mean depth and such inclinations as occur in practice, can be read off the rule with great ease. The instrument is also capable of showing the diameter of a pipe to discharge any given quantity. On the back of the rule, tables will be found for facilitating the calculations of the area and hydraulic mean depth of segments of circular and various oval conduits, for use when ascertaining the discharge of a conduit flowing only partly full. Mr. W. F. Stanley is the maker of the instrument, and great care appears to have been taken in its construction.

The English Iron Trade.—The English iron market is still unsettled, owing to the strike in Scotland, and although there are reports of its early collapse, which should be received with due reserve, its present effect tends, to a certain extent, to paralyse trade and to disorganise prices. This has been especially the case in the Glasgow warrant and the Middlesbrough iron markets. Scotch warrants have vacillated a great deal, while makers in Scotland do not quote at all. The fluctuations in the North of England pig-iron market have not been great, but they show that speculative influences are at work. In the Lancashire and other markets business in pig-iron is almost stopped. A fair inquiry continues in the hematite iron trade of the north-west, with prices tending upwards. The trade doing in finished iron is from moderate to fair, but prices are well maintained, which, under present conditions, could not well be otherwise. The improved tone in the steel market has not been impaired. Ship-builders and engineers continue busy.—*Iron.*

Dock Extension at Gloucester.—The Canal Company have for some time had under consideration proposals for the extension of dock accommodation in Gloucester. The property proposed to be developed lies at the side of the canal just outside Gloucester, and is thirty-seven acres in extent, and by the construction of a dock here much greater facilities will be offered for the discharge of vessels and the storage of cargoes than hitherto. Messrs. Thomas Adams & Son, Limited, timber merchants, of Gloucester and Birmingham, have secured seven acres of land adjoining the proposed new dock, which will give them a frontage of 1,500 ft. to deep water, and enable them to discharge six or seven vessels at one time. In this connexion the probability is mooted of important changes by the Midland Railway Company which, if carried out, would enable the company to do away with its present connexion between the dock system and the main line and its many inconvenient level crossings.—*Birmingham Gazette.*

Technical Education for Plumbers.—The *Newcastle Chronicle* announces that Mr. G. E. Bland, lately of Leeds, has been invited by the committee of the Plumbers' Technical Class Association, acting in conjunction with the Durham College of Science, to assist in the teaching of the technical class held in that college. Mr. Bland will give a short course of lectures during the present term. The Worshipful Company of Plumbers has undertaken to conduct an elementary examination in May next, and to give certificates to junior apprentices. The same company will, in subsequent years, conduct examinations of a more advanced character in accordance with the graded syllabus of instruction drawn up by them, and intended to occupy at least three sessions.

Inlet Safety Gas Regulator.—This is a very useful and simple invention by Messrs. Slatter & Watkins, the object of which is to enable the master of a house or of a large establishment to check and regulate the inlet of gas from the main before it enters the meter, and to prevent any one turning on the gas fuller than experience has proved to be necessary for the sufficient illumination of the building. This is done by means



of a stud on the ordinary regulator wheel, which enters a slot on a spur wheel which is called the "stop wheel." The shaded hand on the dial, shown in the cut, marks at what point the supply is to be checked; when the shaded hand is at that point, the gas inlet cannot be turned on further than will bring the black indicator hand level with the "stop" hand. The stop action is worked by the rack wheel on the left below the dial, the dial-hand indicating the result of the movement. The door can of course be kept locked after setting the regulator, so as to prevent its being interfered with. In large houses or places of business this would form a most useful check on the waste of gas.

Archæological Discoveries at Athens.—One of the representatives of the German Government, watching the excavations at Athens, writes to us:—In the quarter north-east of the Acropolis an extensive Roman gymnasium is being excavated on behalf of the Greek Archæological Society. The site is close to the well-known Tower of the Winds, or the Horologion of Andronicos, and as evidently of the same importance for the leisure and recreation of the Athenian public in Imperial times as is the splendid Stoa of Hadrian in the next street, together with which and the Attalos Stoa, the gymnasium, when entirely excavated, will become a special feature of this part of the town. The excavations show a double row of Roman columns with Ionic capitals, surrounding a large yard, beautifully laid out with well-preserved marble slabs. The underground water-pipes, visible through the round opening of a well, remind them that every new excavation shows how much better the Athens of ancient times was watered than is the city of the present day. Some finds, consisting of tombs with reliefs, have been made in the classic cemetery near the Dipylon.—*Pall Mall Gazette.*

The Proposed Bridge Across the Channel.—A paragraph which has appeared in all the daily papers says that the soundings made by the French engineers on their side of the English Channel, in connexion with the proposed Channel-bridge, have now been completed. The results of the survey are, it is stated, not so satisfactory as was hoped, the bed of the Channel between Folkestone and the Varne being somewhat unfavourable to the scheme. In this case another route will have to be found, probably between the nearest land points—namely, Cape Grisnez and Dover.

The Borough Surveyor of Devonport.—The Devonport Town Council has increased the salary of the Borough Surveyor (Mr. J. K. Burns) from 250*l*. to 300*l*. per annum.

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised	Premium.	Designs to be delivered.
*Plans for New Cemetery	Melton Mowbray L. B.	20 and 10 guineas..	Jan. 30/91

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Paving Works	Lewisham Bd. of Wks.	*Official*	Oct. 14
*Broken Guernsey Granite	Willesden Local Board	O. Claude Eckan	do.
Screening Chamber, &c. Sewage Works	Nuneaton Local Board	J. B. Pickering	do.
Ironwork at Euston, New Station at Geostrey (Cheshire), Enlargement of Station at Llandudno, &c.	L. & N. W. R. Co.	*Official*	Oct. 15
New Passenger Station, &c. Nelson	Lancs. & Yorks. R. Co.	do.	do.
Sewers, Drains, &c. Farnborough	Hattley Wintney R.S.A.	J. B. Sisterton	do.
*Making Roof of Corn Exchange Watertight	Basingstoke Corp.	H. Budden	do.
*Aberdeen Pitchings	St. George-in-the-East Vestry	*Official*	Oct. 16
*New Goods' Offices, Liverpool, Reading-room, Child's Hill, &c.	M. R. Co.	do.	do.
*Painting Outside of Infirmary, Dulwich	St. Saviour's Union	Jarvis & Son	do.
*Removal of Slop	Hampstead Vestry	*Official*	do.
*Paths, Alterations, &c. S.E. Hospital	Met. Asylums Board	H. Jarvis & Son	do.
Supply of Wood	Stepney Union	*Official*	do.
Road Metal (600 yards)	Penarth Local Board	Jas. Court	Oct. 18
Warehouse, Plymouth	Western Counties Agri. Co-op. Assoc. Lim.	*Official*	do.
Jetty Quay Extension	Belfast Harbour Com.	T. R. Salmond	Oct. 20
College Buildings	Hymer's College, Kingston-upon-Hull	Botterill, Son, & Bilson	do.
*Additions to London University Buildings	Com. of H. M. Works	*Official*	do.
*Repair of Private Roads	Croydon Council	do.	Oct. 21

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Making a Road, Knowle-hill, nr. Bristol	.....	Spackman & Son	Oct. 21
New Roads, Sewers, Drains, &c. Dawlish	F. J. Pidgley	Edwd. Ellis	Oct. 22
Board School, &c. Eastrick, Brighouse	.....	B. Stocks	Oct. 23
New Railway Lines, Bridges, Station, &c.	Highland Rail. Co.	M. Paterson	do.
*Erection of School, Harlesden	Willesden School Bd.	J. M. Brooks	do.
*Coast Guard Station, Walton-on-Naze	Admiralty	*Official*	Oct. 29
*Enlargement of Dining-room, &c. G.P.O.	Com. of H. M. Works	do.	do.
*Main Drainage Extension	West Ham Council	Lewis Angell	do.
*Completion of Church Tower and Spire, Wellington	.....	J. F. Fogerty	Oct. 30
Telegraph Poles and Creosoting	G. P. O.	*Official*	Oct. 31
Water Supply to Asylum, Hartwood, Shotts, N.B.	Lanark Dist. Lunacy Board	do.	No date
Dressing and Fixing Kerb (250 yards), Newcastle-on-Tyne	T. H. Hutchinson	.....	do.
Tramway Paving	Gateshead, &c. Tram. Co.	.....	do.
New Hotel, Llanelly	Mrs. Griffiths	J. B. Wilson and G. Moxham	do.
Two Houses, New Silksworth, Newcastle-on-Tyne	J. Fairs	.....	do.
Lodge at Recreation Ground	Bedford Corporation	*Official*	do.
New Roads, Tonypandy, Rhondda Valley	.....	J. G. Maddox & Co.	do.
*Hotel and Houses, Manchester-sq. W.	.....	J. Sawyer	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary	Applications to be in
*Assistant Surveyors (2)	Islington Vestry	200*l.* each	Oct. 18
*Clerk of Works	St. Pancras Vestry	4*l.* 4*s.* weekly	do.
*Waterworks Manager	Darwen Town Council	130*l.*	Oct. 21
*Civil Engineering Draughtsman, Hull	The Boro' Engineer	100*l.*	No date
*Sanitary Inspector	Jewish Bd. of Grdns.	Not stated	do.

Those marked with an Asterisk (*) are advertised in this Number. Competition, p. iv. Contracts, pp. iv. and vi. Public Appointments, p. xviii.

WOOD-CARVING.—A new studio will be opened at King's College on Monday, the 13th inst., under the auspices of the Worshipful Company of Carpenters, for wood-carving classes. Particulars may be had of the Clerk to the Company, Carpenters' Hall.

ASSOCIATION OF MUNICIPAL AND SANITARY ENGINEERS AND SURVEYORS.—The tenth examination held under the auspices of this Association was held at 11, Victoria-street, Westminster, on Friday and Saturday, October 3 and 4, when eight candidates entered. The written and graphic examination was taken on the first day, and the *viva voce* examination occupied the greater part of Saturday. The examiners were Messrs. J. Lobley, M.Inst.C.E. (Past President), Engineering as Applied to Municipal Work; James Lemon, M.Inst.C.E. (Past President), Building Construction; T. De Courcy Meade, A.M.Inst.C.E. (Vice-President), Sanitary Science; and W. Santo Crimp, A.M.Inst.C.E. (Member of Council), Public Health Law.

PYROGRANITE.—This is the title of a new material formed by a combination of a fusible with an infusible clay, by which a very hard material can be formed from very common clays, which can moreover be mixed in such a manner as to take (after polish) the appearance of various marbles. This mere imitation of another material will of course have nothing to recommend it with most architects; we may only observe that those who do want imitation marbles may probably find pyrogranite harder and more lasting than scagliola; but the polished self-coloured specimens, which do not imitate anything but merely present a polished surface of various colours, will form a very good substitute, both as to appearance and sanitary fitness, for marble and other more expensive substances for dados and wall-lining. Comparing the pyrogranite with glazed brick, it has the advantage that it can be made as a homogeneous one, the same substance all through but polished on the surface, instead of being merely coated with a glaze laid on. The material is also shown in the shape of thick paving bricks, which appear to be of splendid quality and have a ring like metal; and it is also suggested by the English patentee, Mr. Freeman, that it can be used in such thin slabs as to take the place of slate for roofs. We saw some pieces as thin as slate; we doubt if they have in this thickness the tenacity and durability of slate; but the material can, we think, be used as roofing-tiles in lesser thicknesses and consequently with less weight, than most roofing-tiles in the market. The manufacture is the invention of a Russian, a practical brickmaker, who has experimented for many years in the mixing of blue red and grey marls with various fire-clays. The patent rights have been already purchased in the United States as well as in England; and Mr. Freeman proposes to offer a limited number of licences to manufacturers to work the process. We made a very careful examination of a number of specimens, and without undertaking to promise for it all that is claimed by those directly interested in it, we can state that the material is worth attention; and it ought not to be a costly one, since the patentee states that he can produce it, by the working up of this special process, from inferior beds of clay which would otherwise be little better than waste stuff.

THE ASSOCIATION OF PUBLIC SANITARY INSPECTORS.—The annual meeting of the Association of Sanitary Inspectors of Great Britain was held on Saturday evening in Carpenters' Hall, London-wall, Mr. Hugh Alexander, Chairman of Council, presiding. In the annual report a warm tribute was paid to the memory of the late Sir Edwin Chadwick, ex-President of the Association, and reference was made to the block of business during the late Parliamentary session, excluding measures of sanitary reform recognised as necessary to make sanitary inspection more beneficial to the public health. The report also called attention to the necessity for a statutory definition of the qualifications for sanitary inspectors, tenure of office, duties, and salaries, declaring that the conditions under which at present sanitary inspectors discharged their duties were inimical to the interests of public health. The report was adopted. Mr. Alexander was re-elected Chairman of the Council, and Sir Spencer Wells, M.D., and Captain James, Chairman of the Sanitary Committee of the London County Council, were elected hon. members.

LEGAL.

THE DANGERS OF SKY-SIGNS.

On the 3rd inst. at the Clerkenwell Police Court, the Bovril Company (Limited) were summoned by Mr. C. Meaby, surveyor to St. Luke's Vestry, for that at 63, Bath-street, St. Luke's, they did unlawfully erect a sign projecting over the public way of Lever-street, St. Luke's, and that they did not within fourteen days after notice to them remove so much of the sign as projected over the public way of Lever-street contrary to the 18 and 19 Vic., cap. 120, section 119.—Mr. Bodkin, barrister, appeared on behalf of the St. Luke's Vestry to prosecute, whilst Mr. Forrest Fulton, M.P., appeared on behalf of the defence.—Mr. Bodkin stated that the Bovril Company had erected a very large sky-sign on the top of their warehouse, and the letter B overhung the pavement. This letter, which was of wood, weighed about 1 cwt., and was something like 152 ft. above the level of the street. The St. Luke's Vestry objected to the sign, and they ordered notice, in accordance with the powers given them under this particular section, to remove that portion of the sign that projected over the footway.—Mr. Forrest Fulton said that the fact of the sign being there was not denied, but it was contended that there was no case under this particular section, for there was no projection from the building, for this particular sign was some 80 ft. above the building. What could have been done was that the Vestry might have proceeded against them for this being a dangerous structure, and then with regard to that he should have been able to show that it was not a dangerous structure. Mr. C. Meaby said that the letter B of the sky-sign overhung the footway about 5 ft., and the size of the letter was 8 ft. high and 4 ft. wide. Mr. Frederick George Sage, of the firm of Messrs. Sage & Co., sky-sign manufacturers, stated that they had constructed and erected in the Metropolis and the provinces some eighty of the sky-signs. The letter B of the word "Bovril" was made of wood strapped with iron, and it could sway with the wind. There was no grounds for fearing that, through friction, it would fall for at least fifty years or so. The signs were under supervision. There was a lightning conductor to the sign. Other evidence having been given, Mr. Bros held that the structure was dangerous, and he imposed a fine of 40*s.* Mr. Fulton said that they would consider whether they would take an appeal with regard to the decision or not.

A CLAIM FOR PROFESSIONAL FEES.

TYLOR *v.* NEWSTEAD.

IN the Westminster County-court, on the 2nd inst., the case of Tylor *v.* Newstead came on for hearing before Judge Bayley. The plaintiff, an architect and surveyor, sought to recover 26*l.* for fees due to him for work done for the defendant.

The case for the plaintiff was that the defendant was going to erect a building at the French Exhibition for a panorama of Tel-el-Kebir. Mr. Tylor drew plans (which were submitted to the London County Council) of a wooden building, but that the Council refused to pass. Fresh plans of a larger building were eventually agreed to, and the Council passed the plans of the building on the condition that corrugated iron was substituted for wood. A tender was received from Messrs. Chappell, of Pimlico, for 2,600*l.*, the price for erecting the iron building, but by this time the site had been let to some one else.

The defendant said he went to the plaintiff because he knew he had erected the buildings for other panoramas, including "Niagara" and "Waterloo." The arrangement was that as the matter was all speculation, and he agreed that if the plans were not passed that he should only receive 10*l.* 10*s.* that he had paid into court. He could not erect the building as the Exhibition opened on May 1, and the plans were not passed till the 5th of that month.

Plaintiff did not press for the item of 2*l.* for a second lot of plans, and his Honour gave judgment for 24*l.*, with costs.

MEETINGS.

TUESDAY, OCTOBER 14.

Sanitary Institute (Lectures for Sanitary Officers).—Professor H. Robinson on "Drainage." 8 p.m.

FRIDAY, OCTOBER 17.

Architectural Association.—Annual General Meeting, when an address will be given by the President, Mr. Leonard Stokes. 7.30 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—A Lecture will be given on "Sanitary Building Construction." 8 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

15,140.—DOOR HANDLES: *J. Kaye.*—By means of this patent the handle is fixed in a frame the shape of the letter D, the straight part being the handle. There is a projection at the back of this frame into which a push and pull spindle is screwed. In the door plate is a hole or socket near its centre for the projection of the handle frame to slide in, so shaped as to prevent the handle being turned after having been fixed for use.

15,603.—SASH FASTENERS: *J. H. Austin.*—According to this invention, the object is, first, the automatic locking of the sash when closed; and, secondly, the prevention of the fastening from being undone from outside the sash. Two plates are used, one having a tongue and the other a groove. The tongue and groove are tapered, so that, while there is ample space to insure their engaging with one another when they come together, they draw the two parts of the sash together, and prevent their rattling. This tongue is kept forward by a spring, and its engaging end is bevelled or chamfered off, so that it is pushed back against the spring, as the sash is closed, and automatically springs forward to engage with the recess in the other plate when the sash is closed. A handle is provided, so that the tongue can be drawn back to free the fastening and open the sash.

17,616.—STAND OR PEDESTAL AND SIPHON TRAP COMBINED: *J. T. Bolding.*—A pedestal or stand for a closet-pan, which is the subject of this patent, is made in the form of and acts as a siphon-trap. Being made in lead, it can be joined direct to the soil- or waste-pipe.

9,896.—CHIMNEY TOPS: *G. Tweedy.*—In order to better fix the chimney pots or cowls upon the brickwork, a cover with a flange and sockets, which the cowls or pots may slip over or into, is made and fixed into the brickwork of the chimney at the top.

11,195.—Inlet Ventilators for Drainage: *S. Jennings.*—According to this patent, at the air-inlets are hung mica valves, which, when slightly opened, admit air for purification, and by making the mouth of the pipe round instead of rectangular, more efficient ventilation is secured.

NEW APPLICATIONS FOR PATENTS.

September 22.—14,969, H. Dickinson, Sky-signs.—14,973, A. Clark, Tool for Setting Saw Teeth.—14,975, F. Orwin, Chimney-pot.

September 23.—15,040, J. Lewis, Fixing or Securing Encaustic and Glazed Tiles, &c., to walls, floors, &c.

September 24.—15,095, E. Jones, Tile Cutter.—15,131, H. Gras, Construction of Bridges.—15,139, W. Rennie, Brick Kilns.

September 25.—15,177, J. Wilson, Apparatus for Raising or Breaking up Concrete or similar Flooring.

September 26.—15,226, T. & J. Powell, Door Locks and Latches.—15,251, H. South, Supporting Base for Electric Lamps, &c.—15,252, H. South, Holder for Incandescent Electric Lamps.—15,263, W. Wall, Combined Door Bolt and Indicator.—15,283, E. Thomson, Ascertaining immediately whether Exit Doors or Entrances of Theatres or Buildings are Unfastened.—15,288, H. Champness, Bakers' Ovens.

September 27.—15,302, S. Going, Window Sash and Cord Fastener.—15,320, J. Smeaton, Ventilating and Flushing Sewers, Drains, Waterclosets, &c.—15,337, J. Bonnardot, Electric Alarm Bells.

PROVISIONAL SPECIFICATIONS ACCEPTED.

13,203, J. Empson and others, Syphon Flushing Cisterns.—13,371, H. Harris and W. Power, Electric Bells and Indicators.—14,057, T. Harris, Water-closets.—14,201, R. Grimaldi, Moulds for the Production of Inlaid Designs on Tiles.—14,224, E. Osborne, Paved Streets and Roads.—14,346, E. Olroyd, Warming and Ventilating Hospital Wards and other Rooms and Disinfecting the Air of same.—14,398, C. Von Forell, Manufacturing from Roman Cement a Composition similar to Portland Cement.—14,439, J. and G. Clemenson, Portland Cement.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to Opposition for Two Months.

15,111, W. Hassall, Jointing Stoneware pipes, &c.—17,299. R. Aitken, Method of Making Double-hung Sash Windows open inwards like a door.—18,809, J. Kaye, Securing Latch Handles and Knobs to Doors.—9,883, G. Kendall, Anti-Sash Rattlers.—11,443, A. Buccher, Manufacturing Light Bricks for Building Purposes from Gypsum, &c.—12,466, G. Gardnes, Sash Balances.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

September 29.—By *P. Hodson:* 37 and 53, Carlton-rd., Kentish Town, u.t. 6 yrs., g.r. 11*l.* 12s., r. 62*l.*, 420*l.*; 17, Hungerford-rd., Camden-rd., u.t. 64 yrs, g.r. 5*l.*, r. 85*l.*, 900*l.*, 5 and 7, Freegrove-rd., u.t. 65 yrs., g.r. 10*l.*, 625*l.*

September 30.—By *T. B. Westacott:* 11, Crogaland-rd., Haveratock-hill, u.t. 76 yrs., g.r. 8*l.*, r. 48*l.* p.a., 460*l.*; 4, Bartholomew-villas, Kentish Town, u.t. 68 yrs., g.r. 6*l.* 5s., r. 44*l.*, 405*l.*; 2, Goldhurst-ter., Hampstead, u.t. 88 yrs., g.r. 10*l.*, r. 55*l.*, 450*l.*—By *W. Holcombe:* 69, Clarendon-st., Euston-sq., u.t. 24 yrs., g.r. 11*l.*, 220*l.*; 13, Fulbrook-rd., Holloway, u.t. 66 yrs., g.r. 6*l.*, r. 36*l.*, 350*l.*—By *Bean, Burnett, & Co.:* "Benhilton Mount," Benhilton-rd., Sutton, and 2¼ acres, *f.*, 2,925*l.*; 4 and 6, Hetherington-road, Clapham, u.t. 85 yrs., g.r. 16*l.*, r. 84*l.* p.a., 760*l.*; 31, Dulwich-rd., Herne-hill, u.t. 73 yrs., g.r. 10*l.*, r. 55*l.*, 480*l.*; 158, Stanhope-st., Hampstead-rd., u.t. 47 yrs., g.r. 5s., r. 50*l.*, 770*l.*—By *A. G. Thompson & Co:* 46, Thorne-st., Wandsworth-rd., u.t. 42 yrs., g.r. 6*l.*, r. 36*l.*, 250*l.*

October 1.—By *Vaughan & Co.:* 97, Albert-st., Regent's-pk., *f.*, r. 50*l.* p.a., 825*l.*; 29, Mornington-cres., u.t. 28 yrs., g.r. 5*l.*, r. 65*l.* p.a., 680*l.*; Cording's Cottages, Red Lion-hill, East Finchley, *f.*, 350*l.*—By *M. Liell:* 95 to 101 (odd), Swaton-rd., Bromley, u.t. 72 yrs., g.r. 14*l.*, r. 115*l.* 14s., 725*l.*; three plots of *f.* land, High-st., Leyton, 200*l.*—By *Sherrin & Coltman:* 20, St. John's-rd., Holloway, *f.*, 380*l.*—By *F. Jolly & Co.:* 76, Campbell-rd., Bow, u.t. 72 yrs., g.r. 4*l.* 10s., r. 30*l.*, 315*l.*; the residence "Fairlight," Bounds Green-rd., Wood Green, u.t. 91 yrs., g.r. 7*l.* 7s., 265*l.*

October 2.—By *A. & A. Field:* 94, Blythe-rd., West Kensington, u.t. 75 yrs., g.r. 5*l.* 5s., r. 22*l.*, 350*l.*; 1, 3, and 27, Hassett-rd., Homerton, u.t. 69 yrs., g.r. 8*l.* 4s., 610*l.*—By *H. E. Trafford:* Nos. 375, 377, and 379, Victoria-pk.-rd., u.t. 47 yrs., g.r. 6*l.*, r. 88*l.*, 850*l.*—By *T. G. Wharton:* "The Limes," High-rd., Whetstone, *f.*, r. 45*l.*, 700*l.*; "Alma Cottage," *f.*, r. 25*l.*, 300*l.*—By *Newbon & Harding:* "The Oaks," Farnborough, Hants, *f.*, 600*l.*; 36 and 38, Calthorpe-st., Gray's-inn-rd., u.t. 52 yrs., g.r. 12*l.*, r. 102*l.* 10s., 1,145*l.*; 1 and 2, Elm-rd., Camden Town, u.t. 60 yrs., g.r. 16*l.*, r. 80*l.*, 560*l.*; 43 and 45, Shaftesbury-rd., Hornsey Rise, u.t. 85 yrs., g.r. 14*l.* 14s., 905*l.*

October 3.—By *R. W. Scobell:* 10, Heathland-rd., Stoke Newington, u.t. 88 yrs., g.r. 9*l.* 9s., 420*l.*

[*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; l.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.	£.	s.	d.	£.	s.	d.
Greenheart, B.G. ....ton	6	10	0	7	5	0
Teak, E.I. ....load	10	0	0	13	0	0
Sequoia, U.S. ....foot cube	0	2	8	0	3	0
Ash, Canada ....load	2	10	0	4	5	0
Birch "	2	5	0	4	5	0
Elm "	3	10	0	4	15	0
Fir, Dantzic, &c.	2	0	0	3	15	0
Oak "	2	10	0	4	10	0
Canada	5	0	0	6	10	0
Pine, Canada red	2	10	0	3	10	0
" yellow	2	0	0	5	10	0
Lath, Dantzic ....fathom	5	8	0	8	0	0
St. Petersburg	5	0	0	7	0	0
TIMBER *(continued).*	£.	s.	d.	£.	s.	d.
Deals, Finland, 2nd & 1st. std. 100	7	15	0	10	0	0
" " 4th and 3rd	7	0	0	7	10	0
Riga	6	0	0	8	10	0
St. Petersburg, 1st yellow	9	10	0	14	10	0
" 2nd "	7	10	0	9	0	0
" white	7	0	0	10	0	0
Swedish	7	0	0	15	0	0
White Sea	8	0	0	17	0	0
Canada, Pine, 1st	13	0	0	24	0	0
" " 2nd	9	0	0	16	0	0
" " 3rd, &c.	7	0	0	10	0	0
" Spruce, 1st	8	10	0	10	10	0
" " 3rd and 2nd ..	6	10	0	8	0	0
New Brunswick, &c.	5	10	0	7	10	0
Battens, all kinds	4	10	0	15	10	0
Flooring Boards, sq., 1 in., prepared, First	0	10	0	0	14	0
Second	0	8	0	0	10	0
Other qualities	0	6	0	0	7	0
Cedar, Cuba ....foot	0	0	3½	0	0	4
Honduras, &c.	0	0	3½	0	0	4½
Mahogany, Cuba	0	0	4½	0	0	6½
St. Domingo, cargo average ..	0	0	4½	0	0	6½
Mexican "	0	0	4½	0	0	5½
Tobacco "	0	0	5½	0	0	6½
Honduras "	0	0	5½	0	0	6½
Box, Turkey ....ton	4	0	0	13	0	0
Rose, Rio	13	0	0	19	0	0
Bahia	12	0	0	18	0	0
Satin, St. Domingo....foot	0	0	9	0	1	3
Porto Rico	0	0	10	0	1	6
Walnut, Italian	0	0	4	0	0	7
METALS.						
IRON—Bar, Welsh, in London tn	6	10	0	6	17	6
" " at works in Wales	6	0	0	6	10	0
" Staffordshire, in London..	7	0	0	8	0	0
COPPER—British, cake and ingot	64	10	0	65	0	0
Best selected	67	0	0	67	10	0
Sheets, strong	72	10	0	73	10	0
Chili, bars	60	5	0	0	0	0
YELLOW METAL....lb.	0	0	6½	0	0	6¾
LEAD—Pig, Spanish ....ton	14	10	0	14	12	6
English, com. brands	14	12	6	14	15	0
Sheet, English, 3 lbs. per square foot and upwards....	16	10	0	0	0	0
Pipe	17	0	0	0	0	0
ZINC—English sheet ....ton	27	5	0	27	10	0
TIN—Straits	102	10	0	0	0	0
Australian	102	10	0	0	0	0
English Ingots	104	0	0	0	0	0
OILS.						
Linseed ....ton	23	10	0	24	0	0
Cocoanut, Cochin	34	10	0	35	0	0
" Ceylon	34	0	0	0	0	0
Palm, Lagos	0	0	0	0	0	0
Rapeseed, English pale	29	10	0	0	0	0
" brown	28	0	0	0	0	0
Cottonseed, refined	20	10	0	0	0	0
Tallow and Oleine	21	0	0	40	0	0
Lubricating, U.S.	5	0	0	6	0	0
" refined	7	10	0	12	0	0
TAR—Stockholm....barrel	1	1	6	0	0	0
Archangel	0	15	0	0	0	0

TENDERS.

[Communications for insertion under this heading must reach us *not later than* 12 noon *on Thursdays.*]

ABERGAVENNY.—For new cottage at Park Gwyn and a cattle-shed and other works at Great Triley Farm, near Abergavenny, for the Bailey Estate. Mr. Edwin Foster, architect, Abergavenny:—

Park Gwyn Cottage.

T. Meadows	£359 8 6	E. Sheen	£299 0 0
J. G. Thomas	333 0 0	J. Grimmett, Abergavenny*	263 2 10
T. S. Foster	304 0 0		
T. Parry	296 0 0	* Accepted.	

Great Triley.

Meadows	£187 18 6	Thomas	178 0 0
Parry	180 0 0	Foster, Abergavenny*	£169 0 0
	* Accepted.		

ASHBURTON.—For the erection of two detached villa residences at Ashburton, Devon, for the Ashburton Building Company (Limited). Mr. W. Rowell, architect, Newton Abbot:—

H. Stevens	£1,798 15 0	J. Pomeroy, Ashburton (accepted)	£1,082 12 0
J. H. Foaden	1,397 0 0		

BARKING.—For the construction of a lime-store and lime-mixing machinery, &c., at the Barking Outfall Sewage Works, for the London County Council. Mr. A. R. Binnie, Engineer:—

Williams, Son, & Wallington	£6,297 0 0
Nowell & Robson	6,081 0 0
J. Mowlem & Co.	5,791 0 0

* Recommended by the Main Drainage Committee for acceptance.

BARNET.—For the construction of 12-in. pipe sewers, &c., Parkroad, Barnet, for the Barnet Local Board. Mr. Mansbridge, Surveyor, Local Board Offices, 140, High-street, Barnet:—

		If for 18-in. pipes, add—
J. Pizzey	£1,389 0 0	£280 0 0
J. Garton	1,150 0 0	200 0 0
L. Bottom	1,100 0 0	75 0 0
C. W. Killingback	1,097 0 0	240 0 0
J. Wilmott & Son	1,035 0 0	150 0 0
G. Bell	993 0 0	200 0 0
J. Bloomfield	990 0 0	176 0 0
J. Schofield	977 17 4	220 0 0
T. Butcher	956 0 0	180 0 0
W. Nicholls, Wood Green*	815 0 0	151 0 0

* Accepted for £956. [Surveyor's estimate, £900.]

BISHOPS WALTHAM.—For building new stable and coachhouse, at the King's Head Inn, Bishops Waltham, Hants., for Mr. T. Young. Mr. A. W. Galbraith, architect:—

Hutchings	£328 0 0
Sign, Bishops Waltham (accepted)	241 15 0

BRANDON PARK (Suffolk).—For cast-iron tank to hold 25,000 gallons,—on brick tower,—for the Baron de Barreda. Mr. Edward S. Mansergh, surveyor, 28, Mount-street, Grosvenor-square, W.:—

J. Mowlem & Co.	£1,225 0 0
The Sanitation Company, Limited, 14, Victoria-street, Westminster	1,160 0 0

BRANDON PARK (Suffolk).—For painting and decorating the mansion, Brandon Park, both internally and externally:—

J. & J. King	£1,200	G. Neal, Chilworth-street, Paddington,* W.	£767
G. E. Mills	985		
A. E. Faulkner	970	* Accepted.	

CRAWLEY DOWN.—For the erection of a Village-hall at Crawley Down, Sussex. Mr. Paul B. Chambers, architect, Ship-street-chambers, Brighton:—

F. Stevens	£646	J. Morris	£447
Head Bros.	545	Charlwood	444
Rowland Bros.	495	S. Webber, Crawley Down*	328
A. Foster	466	* Accepted.	

CROYDON.—For five pairs of houses, Brighton-road, Croydon, for Mr. J. Felton. Mr. R. W. Price, architect, 12, Buckingham-street, Strand:—

Smith & Sons	£5,788	Taylor	£4,879
Ward	5,437	Page	4,780
Goulder & Glasscock	5,301	Saunders	4,230
Smith & Bulled	5,196		

DARENTH (Kent).—For painting work at the asylum and schools for the Metropolitan Asylums Board. Messrs. A. & C. Harston, architects, 15, Leadenhall-street, E.C.:—

A. W. Derby	£3,700 0	T. Taylor & Son	£2,768 0
Judd & Son	3,454 0	W. G. Lilly	2,637 0
W. Dudley	3,061 9	Long	2,080 0
G. Foxley	3,009 0	W. F. Hadlow	1,974 0
M. Bachelor	2,996 10	D. G. Springett	1,950 0
A. Martin	2,839 16	W. Akers & Co.*	1,790 0

* Accepted. [Architect's estimate, £1,900.]

DESBOROUGH.—For the enlargement of Board Schools at Desborough, for the Desborough School Board. Messrs. Gotch & Saunders, architects, Kettering:—

G. V. Benson	£1,495 0 0	A. Barlow	£986 0 0
F. Barlow	966 13 0	J. Dawkins, Desborough*	839 0 0

* Accepted.

EDINBURGH.—For about 420 tons of dry-sand cast-iron pipes and special castings, for the Edinburgh and District Water Trustees. Messrs. J. & A. Leslie & Reid, engineers, 72a, George-street, Edinburgh:—

Macfarlane, Strang, & Co.	£3,067 14 6	R. Laidlaw & Son	£3,709 3 8
J. Edington & Sons	2,993 19 2	R. Maclaren & Co., Glasgow*	2,696 15 11
Cochrane, Grove, & Co.	2,810 8 1	* Accepted.	

EXMINSTER.—For extension of gasworks, new gasometer, retort-house, &c., at the County of Devon Asylum. Mr. Archibald D. Dawnay, engineer, London:—

Cocking & Sons, Landd., Frome, for engineering work (accepted)	£283
Lapthorne & Goad, Plymouth, for buildings and tank (accepted)	£964

HALIFAX.—For the erection of eighteen scullery houses and the formation of a new street on the Espe Estate, Halifax, for the Halifax Industrial Society (Limited). Messrs. Jackson & Fox, architects and surveyors, 22, George-street, Halifax:—

Mason's Work.

	For Houses.	For Street.
J. W. Wilson & Son	£2,260 0 0	—
Edwin Naylor	2,220 0 0	—
A. Foster	1,880 0 0	£711 0 0
A. Bland, Halifax (accepted)	1,80[illegible] 0 0	194 0 0

Carpenter and Joiner's Work.

J. Halstead & Son	£774 0 0	John Mansley	711 0 0
R. Alderson & Co.	739 12 0	John Atkinson, Hali[illegible]	
Josh. Halliday	720 0 0	fax*	698 0 0
Fergus Lomas	720 0 0	* Accepted.	

Slater and Plasterer's Work.

A. S. Blackburn	£304 9 0	E. & F. Lamb	£286 0 0
s. Pickles & Sons	294 0 0	Geo. Barratt & Son	286 0 0
Rushworth & Firth	284 0 0	John Marshall, Hipper[illegible]	
Thomas Foulds	268 0 0	holme*	284 0 0
Joseph Webster	267 0 0	* Accepted.	

Plumber and Glazier's Work.

J. Ward, Halifax	£117	Charles Smith, Halifax	£136

HANLEY.—For sewers at Trent Hay, Swan-passage, &c., Main Drainage Works, Hanley, Staffs, for the Borough authorities. Mr. Joseph Lobley, Borough Engineer, Hanley, Staffs:—

Malabar & Poole	£511 3 2	John Mackay	£344 17 6
William Williams	420 10 0	Smith & Taylor, Basford, Stoke-on-Trent*	320 6 3
Joseph Maddock & Co.	378 3 7		
George Wild	345 0 0	* Accepted.	

LONDON.—For taking down and re-building the Mansfield Tavern, Gospel Park, for Mr. Richard Davies, exclusive of all bar fittings and gas. Quantities by Mr. A. Griggs. Mr. Albert E. Pridmore, architect, 2, Broad-street-buildings:—

McCormick	£5,477	Meller	£4,817
Taylor & Son	5,297	Toms	4,469
Julian	4,969	Salter	4,420
Evans	4,835	Killby & Gayford	4,368
Lambie	4,561	Allen & Sons	4,348
King & Son	4,357	Lundy	3,980

LONDON.—For rebuilding Nos. 8, 10, 12, Tottenham-street, and 82, Whitfield-street, Tottenham-court-road. Mr. R. H. Barden, architect. Quantities by Mr. Rookwood:—

Bywaters	£5,940	Gould & Brand	£5,743
Scrivener & Co	5,882	[Amended estimate.]	

LONDON.—For the extension of the Grosvenor-buildings, for the St. George's, Hanover-square, Workmen's Dwellings Association. Mr. H. G. Barden, architect. Quantities by Mr. Rookwood:—

Stoner (No competition)	£3,836 0 0

LONDON.—For the erection of a house at Streatham Park. Mr. William Hunt, architect, 5, York-buildings, Adelphi, W.C.:—

First Contract.

	Box Ground Dressings.	Ham Hill Dressings.
J. Freeman	£2,150 0 0	£2,190 0 0
Smith & Bulled	2,070 0 0	—
Ward, Clarke, & Co.	1,999 0 0	1,943 0 0
W. Downs	1,990 0 0	1,936 0 0
Turtle & Appleton	1,980 0 0	1,872 0 0
Andrews & Son	1,840 0 0	—
H. L. Holloway	1,828 0 0	1,808 0 0
Sayers & Son	1,780 0 0	1,790 0 0

Second Contract.

W. Downs	£2,950 0 0 / £2,961 0 0
Turtle & Appleton	2,900 0 0 / 2,909 0 0
H. L. Holloway	2,883 0 0 / 2,943 0 0
Sayers & Son	2,709 0 0 / 2,734 0 0
Ward, Clarke, & Co.	2,592 0 0 / 2,622 0 0
Smith & Bulled	2,540 0 0 / —
J. Freeman	2,467 0 0 / 2,517 0 0
Andrews & Son	2,378 0 0 / —

LONDON.—For the erection of four buildings on the undermentioned sites, each to contain a room for the teaching of manual training and a room for the use of clerk of works for repairs, for the School Board for London. Mr. T. J. Bailey, Architect:—

St. Clement's-road, Notting-hill.

H. C. Clifton	£1,726 0 0	Barlow & Roberts	£1,199 0 0
W. B. Head & Son	1,418 10 0	Cowley & Drake	1,145 0 0
G. H. Sealy	1,298 0 0		

Hither-green, Lewisham.

J. Derry	£1,082 0 0	James Smith & Sons	£779 0 0
W. H. Lorden & Son	897 0 0	Co-operative Builders' Co.	774 0 0
J. H. Hodgin	864 12 0		
W. M. Dabbs	852 0 0	R. E. Nightingale	754 0 0
Holloway Bros.	845 0 0		

Wood-street, Woolwich.

J. Derry	£1,133 0	Co-operative Builders' Company	£823 0
W. H. Lorden & Son	949 0	Jas. Smith & Sons	796 0
W. M. Dabbs	910 0	R. E. Nightingale	780 0
Holloway Bros.	852 0		
J. H. Hodgin	839 12		

Malmesbury-road, Bow.

Davis Bros.	£1,130	M. Calnan & Co.	£946
McCormick & Sons	947	Atherton & Latta	842
C. Dearing & Son	938	Norris & Luke	824
Steven & Bros.	923	J. T. Robey	795

Lowest tender accepted by the Works Committee in each case.

LONDON.—For additions and alterations to Kirkdale-road Board Schools. Mr. J. T. Newman, architect, 2, Fen-court. Quantities by Messrs. Curtis & Sons:—

Catley	£2,880	Gregar	£2,695
Morter	2,783	F. J. Cushend, Leyton-stone (accepted)	2,650
Holland	2,776		

[Architect's estimate, £3,300.]